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## **COMMENTS AND RESPONSES**

### **Appendix G**

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## 1. Introduction

This Appendix did not appear in the Draft Environmental Impact Statement (DEIS). It has been added to the Final Environmental Impact Statement (FEIS) to present comments received following distribution of the DEIS together with the Navy's responses to those comments. In cases where the text of the FEIS has been changed from the DEIS, a sidebar has been placed in the margin of the FEIS adjacent to the revised text.

On August 9, 1995 the Navy began distribution of the DEIS. The period for comment began with publication of the Notice of Availability in the Federal Register (60 FR 43147-01) on August 18, 1995 and remained open for 53 days, ending on October 10, 1995. The Notice of Availability announced that during the comment period public hearings would be held at Bremerton, Washington; Portland, Oregon; Seattle, Washington and Richland, Washington. In addition to the Federal Register Notice, 12 public notices were printed among the newspapers Bremerton Sun, Tri-City Herald, Oregonian and Seattle Post-Intelligencer, which have a collective distribution of over 650,000. Also, the Tri-Party Agreement Publications, which have a distribution over 1,000, identified the time and place of the public hearings. Over 160 notices and DEISs were distributed by the Navy to individuals and organizations that have expressed an interest in the disposal of defueled Navy reactor compartments.

A total of fifteen written statements and five oral statements were received as follows:

	<u>Written</u>	<u>Oral</u>
Federal Agencies	2	0
State Agencies	3	1
Local Groups	6	2
Individuals	4	2

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## **2. Comment Letters and Records of Public Hearings**

This chapter incorporates comment letters and records of public hearings. Unique identification numbers have been assigned to each letter and statement. The identification numbers correspond to the sequence in which the material was received by the Navy and, therefore, approximate a chronological correlation. An exception to this chronological order occurs where a respondent provided more than one exhibit. In these cases the identification number for the first submittal was assigned in order and suffix letters have been used with the initial identification number to differentiate submittals.

Exhibits have been sidebarred to identify issues which have been numbered according to the order in which they are presented in the Navy's responses to issues from public review. The analyses and responses to issues can be located in chapter 3.

An Exhibit Index is provided at the end of this chapter. The index is comprised of listings of three associated identifiers: (1) name of commenter or organization, (2) identification number assigned to the associated letter or statement, and (3) the page number where the letter or statement begins. The Exhibit Index lists each letter or statement by numerical sequence of identification number. The Exhibit Index provides a cross reference for readers to readily locate exhibits of a known commenter and to relate exhibits of specific interest to respective commenters.

#1

Mr. John Gordon  
Puget Sound Naval Shipyard  
Code 1160  
Bremerton, WA 98314-5001

August 18, 1995

Dear Mr. Gordon:

This serves as my comment upon the DRAFT ENVIRONMENTAL IMPACT STATEMENT ON THE DISPOSAL OF DECOMMISSIONED, DEFUELED CRUISER, OHIO CLASS, AND LOS ANGELES CLASS NAVAL REACTOR PLANTS.

I guess I'm real disappointed about our having to decommission another set of nuclear-powered ships. With the last environmental impact statement on submarines in which ten reactors were supposed to be decommissioned, we've found that there has been many more reactor cores buried at Hanford. So, I'm worried on one level that Washington state may be in for more than what this draft statement is telling us.

And then again we will be considering the radiation, lead, and PCB's which will be buried with them and be dumped into the soil and then into the aquifers and underground rivers into the Columbia River. I find it strange that the government is currently intently involved with spending millions to clean up the underground rivers and soils in the 100 areas eventually where the pollutants from these very cores along with others will also end before going into the Columbia River. Somehow knowing whether the cores are buried aboveground or underground doesn't really solve the enormous problems we will be faced with in these ensuing burials. And, we will have permits given out by the Department of Ecology on wastes which if they were anywhere else in this state but Hanford would not be permitted.

And yet, I do feel Hanford is probably the best place to bury these cores. They can be removed at the shipyard where the workers have plenty of experience, where the equipment is sufficient, where the safety precautions are well known, and where it is relatively close to the burial site which is also experienced with reactor cores.

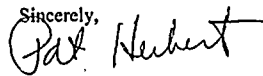
I guess what really bothers me is the enormous amounts of money being spent in such wasteful ways when so many people are unemployed and job development for all of us has deteriorated. At a time when this country should be developing decent well-paying jobs for everyone, we see the majority of money being spent for defense and defense-related projects of which this is one.

What can we do together to insure we dispose of these cores in an environmentally-conscious manner and still realize that a peaceful society spends its' money on projects which give the optimum peace to all? It seems to me we should be most concerned with

the way we spend billions to build a force of nuclear ships and submarines which is too large for the threat we are allegedly seeing in the world. We have seen such waste in the past and are still seeing waste in projects which are basically unreal. We build too many nuclear vessels, we spend too much on burials and cleanup, we lie to the public after hearing their concerns. When is this going to end? Certainly not in my generation. What are we giving our children but bills and problems with undereducated peers many of whom today are barely able to survive. Doesn't this bother you? We've spent all of this month informing people of the tortures and injustices of World War II while we are currently doing the same thing to just as many people in our own country.

Well, thank you for allowing me to comment.

Sincerely,



Pat Herbert  
P.O. Box 95966  
Seattle, WA 98145

1.7

2.5

1.9

1.9

#2

Donald Eugene Evett  
3106 South 975 East  
Bountiful, Utah 84010

September 18, 1995

Mr. John Gordon  
Public Affairs Officer  
Puget Sound Naval Shipyard  
1400 Farragut Avenue  
Bremerton, WA 98314-5001

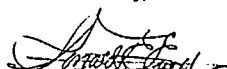
RE: **DRAFT ENVIRONMENTAL IMPACT STATEMENT ON THE DISPOSAL OF  
DECOMMISSIONED, DEFUELED CRUISER, OHIO CLASS, AND LOS  
ANGELES CLASS NAVAL REACTOR PLANTS**

Dear Mr. Gordon:

I have carefully reviewed the August 1995 impact study and I concur with the Navy's report on the impact of burial of the applicable reactors at the Hanford Site. The impact study is very thorough in that it covers all of the major aspects of concerns to the public. Hanford appears to be the best site for burial of the reactors and the report indicated that Hanford will be an indefinite burial site lasting for many years.

I wish to thank you for having the opportunity to review the study and to submit my comments. It is a very comprehensive study and in my opinion all safety factors have been carefully studied and explained in the report and the entire process of dismantling, transport and burial will be safe to the general public for now and in the distant future.

Sincerely,

  
Donald E. Evett

G-4

COPY

PROCEEDINGS

PUBLIC HEARING  
DRAFT ENVIRONMENTAL IMPACT STATEMENT  
ON DISPOSAL OF DECOMMISSIONED, DEFUELED CRUISER,  
OHIO CLASS AND LOS ANGELES CLASS  
NAVAL REACTOR PLANTS

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Bremerton High School  
Bremerton, Washington 98310

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REPORTED BY PAMELA J. FRANZ  
September 18, 1995

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ATTENDANCE

MR. DICK SHIPLEY - Director of Environment, Safety, and  
Health, Puget Sound Naval Shipyard,  
presiding officer.

MR. JIM WRZESKI - Navy's reactor compartment disposal  
manager.

MR. MARK FRENCH - Department of Energy

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1 The Assembly of the Public Hearing regarding  
2 the Draft Environmental Impact Statement on Disposal of  
3 Decommissioned, Defueled Cruiser, OHIO Class and LOS  
4 ANGELES Class Naval Reactor Plants convened on the 18th  
5 of September, 1995, at the Performing Arts Center, 1500  
6 13th Street, Bremerton, Washington, beginning at the  
7 hour of 7:00 p.m., Mr. Shipley presiding.

8 \* \* \* \* \*

9 MR. SHIPLEY: Good evening, ladies and  
10 gentlemen. Thank you for coming. My name is Dick  
11 Shipley, and I'm the director of Environment, Safety,  
12 and Health at Puget Sound Naval Shipyard. Tonight, I'm  
13 serving as the presiding officer for this public  
14 meeting.

15 With me this evening is Mr. Jim Wrzeski, the Navy's  
16 reactor compartment disposal manager. Also with us  
17 tonight from the Department of Energy is Mr. Mark  
18 French. The Department of Energy is a cooperating  
19 agency in the development of the Environmental Impact  
20 Statement.

21 On August 15th, 1995, the Navy announced in the  
22 Federal Register the availability of the Draft  
23 Environmental Impact Statement, what we call the Draft  
24 EIS, on the disposal of decommissioned, defueled reactor  
25 plants from cruisers and the OHIO Class and LOS ANGELES

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1 Class submarines. The Navy, in cooperation with the  
2 Department of Energy, has prepared this Draft EIS to  
3 focus on the potential for significant environmental  
4 impacts and to consider reasonable alternatives.

5 The management of spent fuel is not the subject of  
6 this EIS. The disposition of spent fuel was addressed  
7 in the Department of Energy EIS, identified on this  
8 slide, with the Navy as the cooperating agency.

9 The Navy's Federal Register announcement scheduled  
10 public meetings at various locations in order to provide  
11 organizations and individuals with an interest in this  
12 matter with an opportunity to present their views. We  
13 are here this evening to conduct one of these scheduled  
14 public meetings.

15 Tonight's meeting is being held as part of the  
16 decision-making process required by the National  
17 Environmental Policy Act called NEPA. NEPA is our basic  
18 national charter for protection of the environment.  
19 NEPA procedures ensure that environmental information is  
20 available to public officials and citizens before  
21 decisions are made and before actions are taken.

22 The Draft EIS was developed based on public input  
23 received during the scoping phase of the NEPA process.

24 Tonight we are here to listen to what you have to  
25 say. We will not be directly responding to questions

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tonight. The purpose of tonight's meeting is to receive your input so that it can be addressed in the development of the Final EIS. The purpose is not to engage in debate.

It is my responsibility to receive statements so that they can be considered in preparing the final EIS. For that reason, this meeting is being recorded.

Copies of the agenda for tonight's meeting are available on the table at the back. It explains the order of our meeting this evening and will consist of a presentation by Mr. Wrzeski on the alternatives evaluated in the Draft EIS.

This presentation will last approximately 20 minutes and will be followed by the formal comment period. The comment period is the time we listen to you. Responses to each individual comment or question will be in the Final EIS.

After all comments have been given, we will conclude the meeting with closing remarks. I will afford an opportunity to those individuals and organizations who wish to speak. I would appreciate it if anyone wishing to speak would fill out a registration form over by the door.

To get everyone's comment, I will ask that long statements be summarized to five minutes with the

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written statement submitted for the record.

Whether or not you speak this evening, you may also provide written comments to me or leave them with the staff at the registration table. Oral and written input will be considered equally in the development of the Final EIS.

If you desire to provide written comments at a later time, they should be sent to: Mr. John Gordon, Puget Sound Naval Shipyard, 1400 Farragut Avenue, Code 1160, Bremerton, Washington 98314-5001.

Written comments postmarked by October 10th, 1995 will be considered in preparation of the Final EIS. Comments postmarked after that date will be considered to the extent practical.

Before we begin receiving public input, I would like to introduce Mr. Wrzeski, who will provide a general overview of the alternatives which have been evaluated in the DEIS.

Mr. Wrzeski.

\* \* \* \* \*

**PRESENTATION**

MR. WRZESKI: Thank you, Mr. Shipley. Good evening, ladies and gentlemen.

By the 1980s, many of the Navy's submarines were reaching the end of their useful life. At that time,

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1 the Navy prepared an Environmental Impact Statement to  
2 evaluate various disposal methods for the radioactive  
3 components associated with the nuclear power plants on  
4 these submarines.

5 In the 1984 Record of Decision, the Navy selected  
6 land burial of the reactor compartment as the disposal  
7 method for these components. Since then, the Navy has  
8 completed 50 successful shipments under the 1984  
9 program.

10 Now, in the 1990s, recent changes in the national  
11 defense structure have resulted in downsizing of the  
12 fleet, including nuclear-powered combatants. Because of  
13 this downsizing, the Navy will soon need to address  
14 disposal of the reactor compartments associated with  
15 cruisers, OHIO Class submarines and LOS ANGELES Class  
16 submarines.

17 This EIS has been prepared because the  
18 approximately 100 reactor compartments from these  
19 classes of ships were not covered under the 1984 EIS.

20 This figure shows the location of the reactor  
21 compartments on the typical Navy cruiser and submarine.

22 The functional design of the ship's reactor  
23 compartment makes it an ideal disposal package. The  
24 compartment is completely enclosed by structural walls  
25 known as bulkheads and, in the case of a submarine, part

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1 of the enclosure is the ship's pressure hull.

2 The bulkheads contain lead shielding to protect the  
3 crew during reactor operation. The bulkheads are  
4 designed to meet the shocks and stresses of a military  
5 ship under combat conditions.

6 These features make the reactor compartment a  
7 superior transportation and disposal package that is far  
8 stronger than typical industry containers used to  
9 dispose of low-level radioactive waste.

10 The remainder of the ship is recycled to reuse the  
11 metals.

12 Tonight I will first discuss the alternatives the  
13 Navy considered for disposal of the reactor plant.  
14 Later in my presentation, I will cover the potential  
15 environmental consequences. In all of the alternatives  
16 considered, the spent fuel would be removed before  
17 initiating disposal.

18 The Navy evaluated several alternatives in this  
19 EIS. Land burial of the entire reactor compartment at  
20 Hanford, Washington is our preferred alternative. We  
21 also looked at waterborne storage of the ship, which is  
22 the no-action alternative. We evaluated subdivision of  
23 the reactor compartment. This alternative disassembles  
24 the reactor plant and disposes of the components  
25 separately. Finally, we looked at above-ground storage

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1 of the reactor compartments at Hanford.

2 Now I would like to describe our preferred  
3 alternative. In the interest of time tonight, my  
4 presentation will focus mainly on the preferred  
5 alternative, even though the Draft EIS analyzes the  
6 others in considerable detail.

7 As discussed earlier, the reactor compartment makes  
8 an ideal disposal package. For this and other reasons  
9 that I'll discuss, the Navy has determined that burial  
10 of the entire reactor compartment at Hanford is the  
11 preferred alternative.

12 This is the same basic method as our current  
13 disposal program, which has been demonstrated to be  
14 safe, effective, and is accomplished with no significant  
15 impact to workers, the public, or the environment.

16 As I discuss the preferred alternative, I will be  
17 using slides taken from the Navy's current disposal  
18 program to illustrate the proposed method.

19 The reactor compartment would be separated from the  
20 rest of the ship and placed on a barge for waterborne  
21 transport. The sealed package would meet all Department  
22 of Transportation and Nuclear Regulatory Commission  
23 requirements. The barges used would all meet the United  
24 States Coast Guard and Navy requirements.

25 The inset shows the transportation route proposed

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1 for all of the alternatives that take an entire reactor  
2 compartment to Hanford. The shipments would leave from  
3 Puget Sound Naval Shipyard, proceed along the Washington  
4 coast, up the Columbia River to the Port of Benton near  
5 the Hanford site. This is the same route taken under  
6 the current disposal program.

7 I would like to go into some detail on the safety  
8 features we would use for waterborne transport of the  
9 reactor compartment.

10 We designed the waterborne transport system  
11 conservatively. This means the transport system is  
12 capable of safely handling conditions much worse than we  
13 actually expect.

14 As you can see in this picture, the barges are  
15 designed with multiple tanks and watertight bulkheads  
16 between them. The barge will remain stable under storm  
17 conditions even if two of these tanks are damaged and  
18 completely flooded. Even more damage and flooding could  
19 be sustained and still the barge would remain floating.

20 Safety is further assured by not shipping in bad  
21 weather. We use only experienced towing contractors and  
22 always use a back-up tug that follows the shipment.

23 In addition, the Navy designs the reactor  
24 compartment package with a number of engineered features  
25 that would facilitate location and salvage.

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At the Port of Benton, the reactor compartment would be offloaded from the barge, hauled over land, and placed in a burial trench similar to what is shown in this picture.

The proposed burial site for the reactor compartments is the low-level burial grounds located near the center of the Hanford site. These burial grounds are well suited to the permanent disposal of reactor compartments. The arid climate, plus existing soil characteristics, are beneficial for waste disposal. In addition, the site is accessible by barge with a short overland haul.

Now I'd like to briefly describe the other alternatives.

The no-action alternative we evaluated is protective waterborne storage of the ship for an indefinite period. The locations considered for waterborne storage are the Puget Sound Naval Shipyard in Bremerton, Washington and the Norfolk Naval Shipyard in Portsmouth, Virginia.

While the impacts are very small during storage, the no-action alternative does not provide for a permanent solution. The effort for final disposition would have to be undertaken sometime in the future.

In contrast to our preferred alternative, in the

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subdivision alternative, rather than remain whole, the reactor compartment would be disassembled.

Because of the reactor compartment's rugged nature, the disassembly effort requires extensive structural work. This work would involve rigorous environmental protection techniques to remove the radioactive components.

Packaging of the large components would require that special shipping containers be designed and built for their disposal. Many would be large enough that shipment by truck or rail would not be feasible. These components would be disposed of at Department of Energy sites such as Hanford or Savannah River.

The amount of smaller components to be processed and transported would be significantly greater under this alternative. This alternative requires 15 times more shipments than the preferred alternative.

The Navy also evaluated storing the reactor compartments above ground for an indefinite period. The location considered for storage is the Department of Energy site at Hanford.

Similar to the no-action alternative, the impacts are very small during storage. However, this alternative also does not provide for a permanent solution and some future action would be required.

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1 Now I am going to talk about the environmental  
2 consequences of the alternatives we considered.

3 Our evaluation was broken down into three segments  
4 that reflect where potential impacts would take place:  
5 at shipyards, along the transportation route, and at the  
6 disposal site.

7 For each of these segments, I will discuss the  
8 results of the environmental studies that were  
9 performed. Several of the studies were performed by  
10 independent, technical organizations outside the Navy,  
11 such as Pacific Northwest Laboratory.

12 The environmental areas we studied for shipyards  
13 are summarized on this slide. We looked at the possible  
14 effects from industrial work such as welding,  
15 sandblasting, and hazardous material removal.

16 We determined that the principle effect is that  
17 shipyard workers would receive some exposure to  
18 radiation. Personnel radiation exposures are maintained  
19 as low as reasonably achievable and would be kept within  
20 the guidelines set by the Nuclear Regulatory Commission.  
21 Total exposure is expected to be much higher in the  
22 subdivision alternative than if the reactor compartment  
23 were left whole.

24 The industrial procedures used to prepare reactor  
25 compartments for disposal would be the same as these

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1 currently used at the shipyard. These procedures are in  
2 compliance with Navy Occupational Safety and Health  
3 requirements. These requirements are designed to  
4 protect workers from industrial hazards associated with  
5 their work.

6 The measures used by the Navy to protect its own  
7 workers from potential hazards during disposal work  
8 would protect the surrounding public and the environment  
9 as well.

10 The environmental areas we studied for  
11 transportation are summarized on this slide. The  
12 potential health effects to the general population and  
13 the transport crew were evaluated for normal conditions  
14 of transport and accident scenarios. The potential  
15 impacts from transport were found to be very low for all  
16 scenarios considered.

17 In the extremely unlikely event that a barge did  
18 sink and water entered the reactor compartment, no  
19 significant environmental impact would occur. Now, this  
20 is because 99.9 percent of the radioactivity in the  
21 reactor compartment is part of the reactor plants' metal  
22 components and can only be released through corrosion.  
23 The remaining radioactivity is contained within the  
24 sealed reactor plant systems.

25 There would be no environmental consequences from

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1 other hazardous substances. This is because most are  
2 solids and would, therefore, not be released to  
3 surrounding waters.

4 The environmental areas we studied at the burial  
5 site are summarized on this slide. The focus of our  
6 analysis was the movement of radioactive and hazardous  
7 substances from the burial site. We call this process  
8 migration.

9 It is important to point out a couple of areas  
10 where the studies assumed unfavorable conditions.  
11 Making these assumptions mean the study results are  
12 worse than we actually expect.

13 Hanford has an arid climate with only about 6  
14 inches of rainfall per year. The study assumed that  
15 there is ten times more moisture in contact with the  
16 buried compartments than is expected under current  
17 conditions.

18 The migration study also assumed that the hazardous  
19 materials were exposed and immediately available for  
20 movement through the ground. When, in fact, the  
21 corrosion study determined that the reactor compartments  
22 are so robust that they will contain these materials for  
23 at least 600 years.

24 This slide summarizes the results of the migration  
25 study.

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1 The study determined that it would take over  
2 700,000 years for lead to reach the Columbia River.  
3 Most of the radioactive material would decay away before  
4 being released. Radioactive nickel would make up the  
5 bulk of what is released and this nickel would take over  
6 200,000 years to reach the river.

7 For all substances considered in this evaluation,  
8 concentrations would not exceed current groundwater  
9 protection standards.

10 Because these results are based on the unfavorable  
11 assumptions, we expect the actual movement of  
12 radioactive and other hazardous materials to take much  
13 longer and result in even lower concentrations.

14 Now I would like to discuss the potential impact of  
15 radiation exposure to workers and the public.

16 The health concern of low-level exposure to  
17 radiation is the potential to induce cancer over time,  
18 referred to as latent cancer. Many studies have been  
19 done to determine the effect radiation would have on the  
20 chance of a person developing cancer.

21 Our studies determined the potential radiation  
22 exposures for all the alternatives evaluated. We then  
23 used conversion factors approved by the International  
24 Council on Radiological Protection to determine the  
25 number of potential latent cancer fatalities.

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1 First, let's look at the analysis of impacts to  
2 shipyard workers.

3 To dispose of the entire reactor compartment, no  
4 more than .6 additional latent cancer fatalities are  
5 projected among shipyard workers. This is for disposal  
6 of all 100 reactor compartments.

7 The subdivision alternative involves significantly  
8 more work. Because of this, shipyard workers would  
9 receive more radiation exposure than if the reactor  
10 compartment were left whole. Depending on whether  
11 subdivision occurred at the time of ship decommissioning  
12 or was delayed ten years, 13 to 44 additional latent  
13 cancer fatalities are projected among shipyard workers.

14 The impact on shipyard workers is a key  
15 discriminator between land burial of the entire reactor  
16 compartment and the subdivision alternative.

17 For the general public, we looked at the effects of  
18 transporting the reactor compartment to the burial site.  
19 The general public population in the vicinity of the  
20 transport route is about 200,000 people. As you can see  
21 in this table, there would be virtually no effect to  
22 dispose of all 100 reactor compartments regardless of  
23 the alternative selected.

24 There are projected to be no more than .003 total  
25 additional cancer fatalities as a result of the land

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1 burial alternative. Now, what this number really means  
2 is that the effect of land burial of all 100 reactor  
3 compartments at Hanford is insignificant when compared  
4 to the chance of being struck by lightning.

5 We concluded that all of the alternatives evaluated  
6 would have minimal impact on the general public and the  
7 environment.

8 For workers, however, land burial of the entire  
9 reactor compartment at Hanford would result in a much  
10 lower potential for latent cancer fatalities as compared  
11 to the subdivision alternative.

12 And finally, land burial of the entire reactor  
13 compartment at Hanford also has the advantage of being a  
14 permanent solution.

15 I thank you all very much for your courtesy and  
16 attention.

17 Mr. Shipley.

18 MR. SHIPLEY: Ladies and gentlemen, it's  
19 important that all of those who wish to speak are  
20 provided with an opportunity to do so.

21 Do we have any cards that were filled out for  
22 registration?

23 Out of courtesy, I intend to recognize  
24 representatives of government organizations and then  
25 individual citizens.

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COMMENTS - by Mr. Shipley  
PUBLIC COMMENT - by Mr. Langhjem

19

I request your cooperation and courtesy tonight while people are speaking. It's important to provide comments within the time limit so that we may be certain that all who wish to speak have an opportunity to do so.

To allow time for everyone's comments, statements should be summarized to five minutes with written statements submitted for the record.

This lighting system will be used to monitor time available to speakers. The green light will initially be illuminated, the yellow light will indicate when 60 seconds remain, and the red light will indicate when your time has expired.

The procedure for public comment will be as follows: I will announce each registered speaker; when called, please proceed to and use one of the two microphones provided; please state your name for the record; if you are representing an organization, please also give the name of the organization as well; and all of your comments should be directed to me.

\* \* \* \* \*

#### PUBLIC COMMENT PERIOD

MR. SHIPLEY: We are pleased to have as our first speaker -- Is it Mr. Henrik --

MR. LANGHJEM: Yes.

MR. SHIPLEY: -- Langhjem?

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PUBLIC COMMENT - by Mr. Langhjem

20

MR. LANGHJEM: That's right.

MR. SHIPLEY: Thank you.

MR. LANGHJEM: Yes, Mr. Shipley. What I'd like to say first is I'm pretty disappointed at the turnout, considering, you know, what all of this does for the community.

The next thing I'd like to ask is when you're talking about storage, of waterborne storage, we're kind of doing that now and have been doing it for many years. Do we not need to look the public in the eye and tell them what we're doing with that and how we're maintaining the integrity of these older vessels?

We've got numerous of them parked out on the waterfront. It's very much a concern. And how long are we going to continue maintaining these on the waterfront? I know we're talking about a different class of submarines, but it's still a valid point.

Another thing I'm concerned with is when it comes to you're talking workers, I agree with you. The burial is the best method. And I've been involved directly, in some cases, in some of the design applications for the 25-35 sub for incapsulation of the reactor compartments at the shipyard.

What I'm concerned about is the work for the recycling end of things. We are hurting workers when

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1 we're doing this type of work. We are not giving the  
2 workers the right to know. We are producing emissions  
3 that the public are unaware of.

4 There's a report that I asked for a copy of, and I  
5 have it over at the seat there. It's called a Toxic  
6 Release Information Summary Report. I believe it's  
7 publication No. 95-417 and it's put out by the State  
8 Department of Ecology.

9 There is not one single entry for this entire  
10 county in that report but yet we are doing airborne and  
11 waterborne emissions. We're trying to do our best,  
12 obviously, to limit them, but there are certain  
13 emissions that I'm concerned with. Evolutions where  
14 we're doing arc weld processes over lead canning and  
15 ballast tanks, using torches to cut through copper,  
16 antifouling paint. We're bringing in boats to work on  
17 right now that we do not have the material safety data  
18 sheets available for.

19 Case in point, the 597, the worker on that  
20 particular project asked his supervisor, you know, what  
21 am I working with. And under federal law we have what  
22 we call the right to know, okay? Right to know means  
23 not right to ask but right to know. These people are  
24 supposed to be told up front what they're working with.

25 These particular material and safety data sheets

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4.8

1 that I have possession of right now took a week to get.  
2 I had to go to Washington to get them and find out who  
3 the manufacturer of the material was, who the applicator  
4 was, what particular facility applied it. And we're  
5 dealing with some pretty nasty materials.

6 Some of these sheets reflect, how should you say  
7 it, concerns over pregnancy, birth defects and whatnot.  
8 We've got a couple of pregnant women down on the dry  
9 dock working on these things. I'm very concerned about  
10 it.

11 I think that in view of the estimates that we've  
12 provided to NAVSEA and what it would cost to cut up  
13 these boats and what we're actually cutting them up for  
14 and the profits that we've made in this last year -- As  
15 you know, we've just received an American citation medal  
16 for the shipyard based on our comearound against our  
17 AOR. I believe what it was is \$180 million deficit.  
18 We've now gone into the black. But what I don't see is  
19 improvements in the work processes against this  
20 recycling effort.

21 People have to understand and the public should  
22 know that to recycle these boats, there is a lot more  
23 than just how we deal with the reactor part and whether  
24 we bury them or not. We're stripping the rest of the  
25 boat down.

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1 We have boats lined up, you know, funded for years  
2 to come that we're going to be working on. I would like  
3 to know what kind of process improvements are going to  
4 be made, you know, as far as the environment, workers  
5 safety, that type of thing. Are we going to roll back  
6 some of those funds that we've been, you know, putting  
7 against our AOR into improved processes for the workers?

8 Thank you.

9 MR. SHIPLEY: Thank you very much.

10 MR. LANGHJEM: Oh, one last thing. We say that  
11 we're 99.9 percent defueled. I'm speaking now because I  
12 understand we don't have a great drove of people.

13 MR. SHIPLEY: Go right ahead.

14 MR. LANGHJEM: The materials inside these  
15 reactor compartments are, in a sense, exposed to neutron  
16 flux. They're activated in themselves. Themselves  
17 being a source of energy of sorts. We're talking of all  
18 of the materials within the reactor compartment are  
19 subject to that and we check for it.

20 Is the public aware that — I don't know if that  
21 99.9 percent is really an accurate figure. Maybe you  
22 can come back at me on that one. Thank you.

23 MR. SHIPLEY: Thank you very much, sir.

24 MR. WRZESKI: Just to clarify the 99.9 percent  
25 figure, that's —

4.10

4.11

1 MR. LANGHJEM: I'm sorry?

2 MR. WRZESKI: Just to clarify the 99.9 percent  
3 figure, to clarify that referring out of my  
4 presentation, that was how much radioac-- Of the  
5 radioactivity in the reactor compartment when we ship  
6 it, that's how much of it is contained in the solvent  
7 medal pieces that we ship. All of the fuel has been  
8 removed from the reactor compartment when we ship.

9 MR. LANGHJEM: Okay. Looking at it the other  
10 way is just a little bit misleading because people don't  
11 understand, when you're talking about the public in  
12 general. You're saying that all of the fuel is out with  
13 the exception of one-tenth of one percent, but we're not  
14 making that statement for the medal itself because the  
15 medal itself is inherent with energy.

16 It emits energy because it's been exposed to neutron  
17 flux, correct?

18 MR. WRZESKI: Yes. That's correct.

19 MR. LANGHJEM: Thank you.

20 MR. SHIPLEY: Mr. Roy Hocker. Is that  
21 pronounced correctly?

22 MR. HOCKER: Hocker. Close enough.

23 MR. SHIPLEY: Thank you.

24 MR. HOCKER: I think you've done a good job of  
25 covering the different things.

4.11

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1 Kind of going on with what the previous speaker had  
2 to say, I'm only concerned about one thing, and I'm not  
3 going to speak to individual issues or any of that. I  
4 work in the shipyard and I see an increasing effort and  
5 I think it's a good faith effort to contract out things  
6 that we can get done more cheaply other ways, but my  
7 concern is the process controls are not in place the  
8 same way they are for the shipyard workers for  
9 contractors.

10 I have personal knowledge, I've got background in  
11 training in QA, and now I work on the waterfront, and I  
12 see that the contractors are not constrained by the same  
13 process controls that we are.

14 It's really nice to say that this is what the  
15 environmental impact is going to be for us disposing of  
16 the reactor compartments, but in the worst-case  
17 scenario, from my standpoint, I'm a civil servant,  
18 should contractors come in, someone from another  
19 shipyard or another entity of some type, and commence to  
20 disposing of nuclear vessels?

21 I have absolutely zero confidence that any of this  
22 would mean anything. I have seen the lack of process  
23 controls and I have addressed them directly myself  
24 through the system in the shipyard and the bottom line  
25 comes down to they play off of a different sheet of

1.8

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1 music. They have controls that they're constrained by,  
2 yes, but they're not anything that's even vaguely  
3 similar to what we have to deal with as shipyard workers  
4 in civil service, as far as NAVSEA is concerned.

5 And so the one question I have - I know it's not a  
6 question-and-answer period tonight - but my concern, as  
7 a citizen living in the city, is if someone other than  
8 us, shipyard workers working for the civil service, if  
9 someone other than us does this job, is this EIS still  
10 valid?

11 MR. SHIPLEY: Thank you very much, sir.

12 Ladies and gentlemen, I have no further  
13 registrations. Has anyone registered to speak that I  
14 have not given the opportunity to?

15 I want to thank all of you on behalf of the United  
16 States Navy for taking the time to participate in the  
17 hearing tonight. We appreciated the opportunity to hear  
18 your comments, and we will work to make sure that  
19 they're addressed in the Final EIS.

20 This meeting is adjourned.

21  
22 HEARING CONCLUDED: 7:30 p.m.  
23  
24  
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## C-E-R-T-I-F-I-C-A-T-E

STATE OF WASHINGTON }  
COUNTY OF PIERCE } ss.

I, PAMELA J. FRANZ, a duly authorized Notary Public in and for the State of Washington, do hereby certify that this is a true transcript of the Public Hearing regarding the Draft Environmental Impact Statement on Disposal of Decommissioned, Defueled Cruiser, OHIO Class and LOS ANGELES Class Naval Reactor Plants; that the minutes of said meeting were recorded in shorthand and later reduced to typewriting; and that the above and foregoing is a true and correct transcript of said meeting.

I do further certify that I am not a relative of, employee of, or counsel for either of said parties or otherwise interested in the event of said proceedings.

I HAVE HEREUNTO set my hand and affixed by official seal this 22nd day of September, 1995.

PAMELA J. FRANZ  
STATE OF WASHINGTON  
NOTARY -- PUBLIC  
My Commission Expires 8-11-96

*Pamela J. Franz*  
Pamela J. Franz, Notary Public in  
and for the State of Washington,  
residing at Tacoma.  
CSR #: FRANZ\*PJ085P8

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DRAFT ENVIRONMENTAL IMPACT STATEMENT  
ON THE DISPOSAL OF DECOMMISSIONED, DEFUELED,  
CRUISER, OHIO CLASS AND LOS ANGELES CLASS  
NAVAL REACTOR PLANTS

## COMMENT FORM

Name: Roy Hocher  
Organization/Agency: PSNS - Representing Myself  
Please check type of organization:  
Federal Agency X State Agency      Local Group      Individual X  
Mailing Address:  
Street: 3311 Rodgers  
City: Bremerton State: Wa Zip: 98312 Telephone: 377-5917

You may turn your comment in at the close of the hearing in the comment box located in the lobby or send it to the address at the bottom of this sheet. Written comments may also be submitted in letter or other format.

*I'm confident the professionals at PSNS, working as civil servants can and will comply with the requirements of the E-PA.*  
*However, the increasing "Contracting out" of our functions has created a situation where contractors are not required to meet our standards. I have no confidence the standards we maintain will be applicable, much less upheld.*

Mail to: Mr. John Gordon  
Puget Sound Naval Shipyard  
1400 Farragut Ave., Code 1160  
Bremerton, Washington 98314-5001

COPY

## P R O C E E D I N G S

PUBLIC HEARING  
DRAFT ENVIRONMENTAL IMPACT STATEMENT ON  
DISPOSAL OF DECOMMISSIONED, DEFUELED CRUISER,  
OHIO CLASS AND LOS ANGELES CLASS NAVAL REACTOR PLANTS

Red Lion Hotel-Jantzen Beach  
Glisan Room  
909 North Hayden Island Drive  
Portland, Oregon 97217

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REPORTED BY PAULA SOMERS  
September 19, 1995

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## APPEARANCES

MR. DICK SHIPLEY - Director of Environment, Safety, and  
Health, Puget Sound Naval Shipyard  
MR. JIM WRZESKI - Reactor Compartment Disposal Manager,  
U.S. Navy  
MR. MARK FRENCH - Department of Energy

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1 The Assembly of the Public Hearing, regarding the  
2 Draft Environmental Impact Statement on Disposal of  
3 Decommissioned, Defueled Cruiser, OHIO Class and LOS  
4 ANGELES Class Naval Reactor Plants, convened on the  
5 19th of September, 1995, at the Red Lion Hotel-Jantzen  
6 Beach, Glisan Room, 909 North Hayden Island Drive,  
7 Portland, Oregon 97217, beginning at the hour of 7:06  
8 p.m., Mr. Shipley, presiding.

9 \* \* \* \* \*

10 MR. SHIPLEY: Good evening. Thank you for  
11 coming. My name is Dick Shipley. I'm the Director of  
12 Environment, Safety, and Health at Puget Sound Naval  
13 Shipyard. Tonight I'm serving as a presiding officer  
14 for this public meeting.

15 With me this evening is Mr. Jim Wrzeski, the Navy's  
16 reactor compartment disposal manager. Also with us  
17 tonight from the Department of Energy is Mr. Mark  
18 French. The Department of Energy is a cooperating  
19 agency in the development of the Environmental Impact  
20 Statement.

21 On August 15th, 1995, the Navy announced in the  
22 Federal Register the availability of the Draft  
23 Environmental Impact Statement, which we call the Draft  
24 EIS, on the disposal of decommissioned, defueled,  
25 reactor plants from cruisers, OHIO Class and LOS ANGELES

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1 Class submarines. The Navy, in cooperation with the  
2 Department of Energy, has prepared this Draft EIS to  
3 focus on the potential for significant environmental  
4 impacts and to consider reasonable alternatives.

5 Spent fuel is not the subject of this EIS. The  
6 disposition of spent fuel was a draft in the Department  
7 of Energy Environmental Impact Statement identified on  
8 this slide with the Navy as a cooperating agency.

9 The Navy's Federal Register announcement scheduled  
10 public meetings at various locations in order to provide  
11 organizations and individuals with an interest in this  
12 matter with an opportunity to present their views. We  
13 are here this evening to conduct one of these scheduled  
14 public meetings.

15 Tonight's meeting is being held as part of the  
16 decision-making process required by the National  
17 Environmental Policy Act called NEPA. NEPA is our basic  
18 national charter for the protection of the environment.  
19 NEPA procedures ensure that environmental information is  
20 available to public officials and citizens before  
21 decisions are made and before actions are taken.

22 The Draft EIS was developed based on public input  
23 received during the scoping phase of the NEPA process.

24 Tonight we are here to listen to what you have to  
25 say. We will not directly be responding to questions.

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## OPENING COMMENTS - by Mr. Shipley

5

1 The purpose of tonight's meeting is to receive your  
2 input so it can be addressed in the development of the  
3 final EIS. The purpose is not to engage in debate.

4 I'm going to wait just a minute until our latest  
5 person is seated, so we'll proceed then.

6 It's my responsibility to receive statements so  
7 they can be considered in preparing a Final EIS. For  
8 that reason, this meeting is being recorded.

9 Copies of the agenda for tonight's meeting are  
10 available on the table in the back. It explains that  
11 the order of our meeting this evening will consist of a  
12 presentation by Mr. Wrzeski on the alternatives  
13 evaluated in the Draft EIS.

14 This presentation will last approximately 20  
15 minutes and will be followed by the formal comment  
16 period. This comment period is the time we listen to  
17 you. Responses to each individual comment or question  
18 will be in the Final EIS.

19 After all comments have been given, we will  
20 conclude the meeting with closing remarks. I will  
21 afford an opportunity to those individuals and  
22 organizations who wish to speak. I would appreciate it  
23 if anyone wishing to speak would fill out a registration  
24 form at the door.

25 To get everyone's comments, I will ask that long

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OPENING COMMENTS - by Mr. Shipley  
PRESENTATION - by Mr. Wrzeski

6

1 statements be summarized to five minutes with the  
2 written statement submitted for the record.

3 Whether or not you speak this evening, you may also  
4 provide written comments to me or leave them with the  
5 staff at the registration table. Oral and written input  
6 will be considered equally in the development of the  
7 EIS.

8 If you desire to provide written comments at a  
9 later time, they should be sent to: Mr. John Gordon,  
10 Puget Sound Naval Shipyard, 1400 Farragut Avenue, Code  
11 1160, Bremerton, Washington 98314-5001.

12 Written comments postmarked by October 10th, 1995,  
13 will be considered in preparation of the Final EIS.  
14 Comments postmarked after that date will be considered  
15 to the extent practical.

16 Before we begin receiving public input, I would  
17 like to introduce Mr. Wrzeski, who will provide a  
18 general overview of the alternatives which have been  
19 evaluated in the Draft EIS.

20 Mr. Wrzeski.

21 \* \* \* \* \*

## PRESENTATION

22 MR. WRZESKI: Thank you, Mr. Shipley. Good  
23 evening, ladies and gentlemen.

24 By the 1980s many of the Navy's submarines were  
25

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1 reaching the end of their useful life. At that time,  
2 the Navy prepared an Environmental Impact Statement to  
3 evaluate disposal methods for the radioactive components  
4 associated with the nuclear power plants on these  
5 submarines.

6 In the 1984 Record of Decision, the Navy selected  
7 land burial of the reactor compartment as the disposal  
8 method for these components. Since then, the Navy has  
9 completed 50 successful shipments under the 1984  
10 program.

11 Now, in the 1990s, recent changes in the national  
12 defense structure have resulted in downsizing the fleet,  
13 including nuclear-powered combatants. Because of this  
14 downsizing, the Navy will soon need to address disposal  
15 of reactor compartments associated with cruisers, OHIO  
16 Class submarines, and LOS ANGELES Class submarines.

17 This EIS has been prepared because the  
18 approximately 100 reactor compartments from these  
19 classes of ships were not covered under the 1984 EIS.

20 This figure shows the location of reactor  
21 compartments on a typical Navy cruiser and submarine.

22 The functional design of the ship's reactor  
23 compartment makes it an ideal disposal package. The  
24 compartment is completely enclosed by structural walls  
25 known as bulkheads and, in the case of a submarine, part

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1 of the enclosure is the ship's pressure hull.

2 The bulkheads contain lead shielding to protect the  
3 crew during reactor operation, and the bulkheads are  
4 designed to meet the shocks and stresses of the military  
5 ship under combat conditions.

6 These features make the reactor compartment a  
7 superior transportation and disposal package that is far  
8 stronger than typical industry containers used to  
9 dispose of low-level radioactive waste.

10 The remainder of the ship is recycled to reuse the  
11 metals.

12 Tonight I will first discuss the alternatives the  
13 Navy considered for disposal of the reactor plant.  
14 Later in my presentation, I will cover the potential  
15 environmental consequences. In all of the alternatives  
16 considered, the spent fuel will be removed before  
17 initiating disposal.

18 The Navy evaluated several alternatives in this  
19 EIS. Land burial of the entire reactor compartment at  
20 Hanford, Washington, is our preferred alternative. We  
21 also looked at waterborne storage of the ship, which is  
22 the no-action alternative. We evaluated subdivision of  
23 the reactor compartment. This alternative disassembles  
24 the reactor plant and disposes of the components  
25 separately. Finally, we looked at above-ground storage

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1 of the reactor compartment at Hanford.

2 Now I'd like to describe our preferred alternative.  
3 My presentation tonight will focus mainly on the  
4 preferred alternative, even though the Draft EIS  
5 analyzes others in considerable detail.

6 As discussed earlier, the reactor compartment makes  
7 an ideal disposal package. For this and other reasons  
8 that I'll discuss, the Navy has determined that land  
9 burial of the entire reactor compartment at Hanford is  
10 the preferred alternative.

11 This is the same basic method as our current  
12 disposal program, which has been demonstrated to be  
13 safe, effective, and is accomplished with no significant  
14 impact to workers, the public, or environment.

15 As I discuss the preferred alternative, I will be  
16 using slides taken from the Navy's current disposal  
17 program to illustrate the proposed method.

18 The reactor compartment would be separated from the  
19 rest of the ship and placed on a barge for waterborne  
20 transport. The sealed package would meet all Department  
21 of Transportation and Nuclear Regulatory Commission  
22 requirements. The barges used would meet all the United  
23 States Coast Guard and Navy requirements.

24 The inset shows the transportation route proposed  
25 for all alternatives that take an entire reactor

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1 compartment to Hanford. The shipments would leave from  
2 Puget Sound Naval Shipyard, proceed along the Washington  
3 coast, up the Columbia River to the Port of Benton near  
4 the Hanford Site. This is the same route taken under  
5 the current disposal program.

6 I'd like to go into some detail on the safety  
7 features we would use for waterborne transport of the  
8 reactor compartment.

9 We designed the waterborne transport system  
10 conservatively. This means the transport system is  
11 capable of safely handling conditions that are much  
12 worse than we actually expect.

13 As you can see in this picture, the barges are  
14 designed with multiple tanks and watertight bulkheads  
15 between them. The barge will remain stable under storm  
16 conditions even if two of these tanks are damaged and  
17 completely flooded. Even more damage and flooding could  
18 be sustained and still the barge would remain floating.

19 Safety is further assured by not shipping in bad  
20 weather. We use only experienced towing contractors and  
21 always use a back-up tug that follows the shipment.

22 In addition, the Navy designs the reactor  
23 compartment package with a number of engineered features  
24 that would facilitate location and salvage.

25 At the Port of Benton, the reactor compartment

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1 would be off-loaded from the barge, hauled over land,  
2 and placed in a burial trench similar to what's shown in  
3 this picture.

4 The proposed burial site for reactor compartments  
5 is the low-level burial grounds located near the center  
6 of the Hanford Site. These burial grounds are well  
7 suited to the permanent disposal of reactor  
8 compartments. The arid climate, plus existing soil  
9 characteristics, are beneficial for waste disposal. In  
10 addition, the site is accessible by barge with a short  
11 overland haul.

12 Now I'd like to briefly describe the other  
13 alternatives.

14 The no-action alternative we evaluated is  
15 protective waterborne storage of the ship for an  
16 indefinite period. The locations considered for  
17 waterborne storage of the ship are Puget Sound Naval  
18 Shipyard in Bremerton, Washington, and Norfolk Naval  
19 Shipyard in Portsmouth, Virginia.

20 While the impacts are very small during storage,  
21 the no-action alternative does not provide for a  
22 permanent solution, and the effort for final disposition  
23 would have to be undertaken sometime in the future.

24 In contrast to our preferred alternative, in the  
25 subdivision alternative, rather than remain whole, the

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1 reactor compartment would be disassembled.

2 Because of the reactor compartment's rugged nature,  
3 the disassembly effort requires extensive structural  
4 work. This work would involve rigorous environmental  
5 protection techniques to remove the radioactive  
6 components.

7 Packaging of the large components would require  
8 that special shipping containers be designed and built  
9 for their disposal. Many would be large enough that  
10 shipment by truck or rail would not be feasible. These  
11 components would be disposed of at Department of Energy  
12 sites such as Hanford or Savannah River.

13 The amount of smaller components to be processed  
14 and transported would be significantly greater under  
15 this alternative. This alternative requires 15 times  
16 more shipments than the preferred alternative.

17 The Navy also evaluated storing the reactor  
18 compartments above ground for an indefinite period.

19 The location considered for storage is the  
20 Department of Energy Site at Hanford.

21 Similar to the no-action alternative, the impacts  
22 are very small during storage. However, this  
23 alternative also does not provide for a permanent  
24 solution, and some future action would be required.

25 Now I'm going to talk about the environmental

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1 consequences of the alternatives we considered.

2 Our evaluation was broken down into three segments  
3 that reflect where the potential impacts would take  
4 place: at shipyards, along the transportation route, and  
5 at the burial site.

6 For each of these segments, I will discuss the  
7 results of the environmental studies that were  
8 performed. Several of the studies were performed by  
9 independent, technical organizations outside the Navy,  
10 such as Pacific Northwest Laboratory.

11 The environmental areas we studied for shipyards  
12 are summarized on this slide. We looked at the possible  
13 effects from industrial work such as welding,  
14 sandblasting, and hazardous material removal.

15 We determined that the principal effect is that  
16 shipyard workers would receive some exposure to  
17 radiation. Personnel radiation exposures are maintained  
18 as low as reasonably achievable and would be kept within  
19 the guidelines set by the Nuclear Regulatory Commission.  
20 Total exposure is expected to be much higher in the  
21 subdivision alternative than if the reactor compartment  
22 were left whole.

23 The industrial procedures used to prepare reactor  
24 compartments for disposal would be the same as those  
25 currently used at shipyards. These procedures are in

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1 compliance with Navy Occupational Safety and Health  
2 requirements. These requirements are designed to  
3 protect workers from industrial hazards associated with  
4 their work.

5 The measures used by the Navy to protect its own  
6 workers from potential hazards during disposal work  
7 would protect the surrounding public environment as  
8 well.

9 The environmental areas we studied for  
10 transportation are summarized on this slide. The  
11 potential health effects to the general population and  
12 the transport crew were evaluated for normal conditions  
13 of transport and accident scenarios. The potential  
14 impacts from transport are found to be very low for all  
15 scenarios considered.

16 In the extremely unlikely event that a barge did  
17 sink and water entered the reactor compartment, no  
18 significant environmental impact would occur. This is  
19 because 99.9 percent of the radioactivity in the reactor  
20 compartment is part of the reactor plant's metal  
21 components and can only be released through corrosion.  
22 The remaining radioactivity is contained within the  
23 sealed reactor plant systems.

24 There would be no environmental consequences from  
25 other hazardous substances. This is because most are

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1 solids and would, therefore, not be released to  
2 surrounding waters.

3 The environmental areas we studied at the burial  
4 site are summarized on this slide. The focus of our  
5 analysis was the movement of radioactive and other  
6 hazardous substances from the burial site. We call this  
7 process migration.

8 It is important to point out a couple of areas  
9 where the studies assumed unfavorable conditions.  
10 Making these assumptions mean the study results are  
11 worse than we actually expect.

12 Hanford has an arid climate with only about 6  
13 inches of rainfall per year. The study assumed there is  
14 ten times more moisture in contact with the buried  
15 compartments than is expected under current conditions.

16 The migration study also assumed that the  
17 hazardous materials were exposed and immediately  
18 available for movement through the ground. When, in  
19 fact, the corrosion study determined that the reactor  
20 compartments are so robust that they will contain these  
21 materials for at least 600 years.

22 This slide summarizes the results of the migration  
23 study.

24 The study determined that it would take over  
25 700,000 years for lead to reach the Columbia River.

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1 Most of the radioactive material would decay away before  
2 being released from the reactor compartments.  
3 Radioactive nickel would make up the bulk of what is  
4 released and this nickel would take over 200,000 years  
5 to reach the river.

6 For all the substances considered in this  
7 evaluation, concentrations would not exceed current  
8 groundwater protection standards.

9 Because these results are based on the unfavorable  
10 assumptions, we expect the actual movement of  
11 radioactive and other hazardous materials to take much  
12 longer and result in even lower concentrations.

13 Now I'd like to discuss the potential impact of  
14 radiation exposure to workers and the public:

15 The health concern of low-level exposure to  
16 radiation is the potential to induce cancer over time,  
17 referred to as latent cancer. Many studies have been  
18 done to determine the effect radiation would have on the  
19 chance of a person developing cancer.

20 Our studies determined the potential exposures for  
21 all the alternatives evaluated. We then used conversion  
22 factors approved by the International Council on  
23 Radiological Protection to determine the number of  
24 potential latent cancer fatalities.

25 First, let's look at our analysis of the impacts to

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1 shipyard workers.

2 To dispose of the entire reactor compartment, no  
3 more than .6 additional latent cancer fatalities are  
4 projected among shipyard workers. This is for disposal  
5 of all 100 reactor compartments.

6 The subdivision alternative involves  
7 significantly more work. Because of this, shipyard  
8 workers would receive more radiation exposure than  
9 if the reactor compartment were left whole. Depending  
10 on whether subdivision occurred at the time of  
11 decommissioning or was delayed ten years, 13 to 44  
12 additional latent cancer fatalities are projected among  
13 shipyard workers.

14 This impact on shipyard workers is a key  
15 discriminator between land burial of the entire reactor  
16 compartment and the subdivision alternative.

17 For the general public, we looked at the effects of  
18 transporting the reactor compartments to the burial  
19 site. The general public population in the vicinity of  
20 the transport route is about 200,000 people. As you  
21 can see in this table, there would be virtually no  
22 effect to dispose of all 100 reactor compartments  
23 regardless of the alternative selected.

24 There are projected to be no more than .003 total  
25 additional cancer fatalities as a result of the land

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1 burial alternative. What this number really means is  
2 that the effect of land burial of all 100 reactor  
3 compartments at Hanford is insignificant when compared  
4 to the chance of being struck by lightning.

5 We concluded all the alternatives evaluated would  
6 have minimal impact on the general public and the  
7 environment.

8 For workers, however, land burial of the entire  
9 reactor compartment at Hanford would result in a much  
10 lower potential for latent cancer fatalities as compared  
11 to the subdivision alternative.

12 And finally, land burial of the entire reactor  
13 compartment at Hanford also has the advantage of being a  
14 permanent solution.

15 I thank you for your courtesy and attention.

16 Mr. Shipley.

17 \* \* \* \* \*

18 MR. SHIPLEY: Thank you.

19 Ladies and gentlemen, it's important that all who  
20 wish to speak are provided with an opportunity to do so.

21 I request your cooperation and courtesy tonight  
22 while people are speaking. It is important to provide  
23 comments within the time limits.

24 To allow time for comments, statements should be  
25 summarized to five minutes with written statements

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1 submitted for the record.

2 This lighting system will be used to monitor time  
3 available to speakers. The green light will initially  
4 be illuminated. The yellow light will indicate when 60  
5 seconds remain. The red light will indicate when your  
6 time has expired.

7 The procedure for public comment will be as  
8 follows: I will announce each registered speaker; when  
9 called, please proceed to and use one of the  
10 microphones provided; please state your name for the  
11 record; if you are representing an organization, please  
12 give the name of the organization as well; and all  
13 comments are to be directed to me.

14 We are pleased to have as our first speaker,  
15 Mr. Doug Stewart-Smith.

16 Mr. Smith.

17 \* \* \* \* \*

18 PUBLIC COMMENT PERIOD

19 MR. STEWART-SMITH: Good evening. For the  
20 record, my name is David A. Stewart-Smith. I'm the  
21 administrator of the Facility Regulation Division for  
22 the Oregon Department of Energy, 625 Marion Street,  
23 Northeast, Salem, Oregon.

24 We will provide written comments prior to the  
25 October 10th deadline.

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1 The first point I'd have is that we appreciate the  
2 Navy conducting this series of hearings and, in  
3 particular, holding a hearing in Oregon on the issue.  
4 But we would suggest that in the future, that as the  
5 state agency responsible for issues involving nuclear  
6 disposal and transportation, that you work with us on  
7 setting up this kind of a public meeting.

8 We have a number of contacts. We'd like to help  
9 you get public notice out, and we think we could help  
10 you have perhaps a more meaningful discussion with  
11 members of the public if we were involved a little bit  
12 earlier.

13 Specifically, with respect to your proposal, our  
14 recent experience with the submarine reactor compartment  
15 shipments has been uniformly positive. The Oregon  
16 Health Division, the state's radiation control agency,  
17 has inspected several of the shipments of the 50 that  
18 you mentioned for the existing campaign, and it's found  
19 them to be well in compliance with all applicable  
20 regulations.

21 The Oregon-Hanford Waste Board's nuclear  
22 transportation committee - the Oregon-Hanford Waste  
23 Board is a citizen advisory commission set up to advise  
24 both the governor and the legislature assembly of issues  
25 related to Hanford - was given a thorough briefing on

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the existing reactor compartment disposal shipment campaign at the Puget Sound Naval Shipyard and found the operation to be well run.

Our agency has been given sufficient notice prior to each shipment, and we continue to appreciate that. So I guess my point is as long as the Navy continues a second disposal program, as you are proposing, in the same manner as our experience has indicated with the current one, we believe these shipments can be conducted safely.

Thank you.

Any questions of me?

MR. WRZESKI: Thank you very much.

\* \* \* \* \*

MR. SHIPLEY: Thank you very much.

Ladies and gentlemen, I have no further registrations. Has anyone registered to speak that I've not given the opportunity to?

I want to thank you all on behalf of the United States Navy for taking the time to participate in the hearing tonight. We appreciated the opportunity to hear your comments and will work to make sure they are addressed in the Final EIS.

This meeting is adjourned. Thank you very much.

HEARING CONCLUDED: 7:27 p.m.

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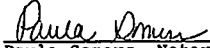
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STATE OF WASHINGTON }  
COUNTY OF KING } ss.

I, PAULA SOMERS, a duly authorized Notary Public in and for the State of Washington, do hereby certify that this is a true transcript of the Public Hearing regarding the Draft Environmental Impact Statement on Disposal of Decommissioned, Defueled Cruiser, OHIO Class and LOS ANGELES Class Naval Reactor Plants; that the minutes of said meeting were recorded in shorthand and later reduced to typewriting; and that the above and foregoing is a true and correct transcript of said meeting.

I do further certify that I am not a relative of, employee of, or counsel for either of said parties or otherwise interested in the event of said proceedings.

I HAVE HEREUNTO set my hand and affixed my official seal this 27th day of September, 1995.

  
Paula Somers, Notary Public  
in and for the State of  
Washington, residing at Renton.  
CSR #: 299-06

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#5a

Oregon

October 3, 1995

DEPARTMENT OF  
ENERGY

Mr. John Gordon  
Puget Sound Naval Shipyard  
Code 1160  
Bremerton, Washington 98314-5001

Dear Mr. Gordon:

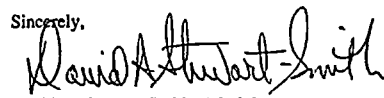
Thank you for the opportunity to comment on the Draft Environmental Impact Statement on the Disposal of Decommissioned, Defueled Cruiser, Ohio Class and Los Angeles Class Naval Reactor Plants. The following comments are submitted on behalf of the Oregon Department of Energy. The Oregon Department of Energy has lead responsibility for the safe transport of radioactive waste through Oregon.

Our recent experience with the Navy's submarine reactor compartment shipments has been positive. The Oregon Health Division has inspected some shipments and found them well in compliance with all applicable regulations. The Oregon Hanford Waste Board's Transport Committee (an advisory group to our agency) was given a thorough briefing on the shipments at Puget Sound Naval Shipyard and found the operation to be very well run. Our agency is also given sufficient notice prior to each shipment.

So long as the Navy continues the disposal program in the same manner as it has in the past, we believe the shipments can be conducted safely. Should the Navy plan any major changes from that program, such as using only one tug instead of two, or not allowing state inspections, then we would have to re-assess the program.

While we are pleased that the Navy conducted a public meeting in Oregon on this issue, in the future, we ask that you work with our agency on schedule, location, and meeting publicity so that we can help you have a meaningful discussion with interested Oregonians. We believe the fact that no members of the public turned out for your Portland meeting is more an indication of your lack of sufficient publicity, rather than a lack of public interest.

Sincerely,

  
David A. Stewart-Smith, Administrator  
Facility Regulation Division

John A. Kitzhaber  
Governor



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## P R O C E E D I N G S

PUBLIC HEARING  
DRAFT ENVIRONMENTAL IMPACT STATEMENT  
ON DISPOSAL OF DECOMMISSIONED, DEFUELED CRUISER,  
OHIO CLASS AND LOS ANGELES CLASS  
NAVAL REACTOR PLANTS

Jackson Federal Building  
915 Second Avenue  
Seattle, Washington 98104

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REPORTED BY KAREN M. RUSK, CSR  
September 20, 1995

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OPENING COMMENTS - by Mr. Shipley

PRESENTATION - by Mr. Wrzeski

PUBLIC TESTIMONY - by Ms. Sarthou

CLOSING COMMENTS - by Mr. Shipley

## ATTENDANCE

MR. DICK SHIPLEY - Director of Environment, Safety, and  
Health, Puget Sound Naval Shipyard

MR. JIM WRZESKI - Reactor Compartment Disposal Manager,  
U.S. Navy

MR. MARK FRENCH - Department of Energy

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1 The Assembly of the Public Meeting regarding  
2 the Draft Environmental Impact Statement on Disposal of  
3 Decommissioned, Defueled Cruiser, OHIO Class and LOS  
4 ANGELES Class Naval Reactor Plants convened on the 20th  
5 of September, 1995, at the Jackson Federal Building, 915  
6 Second Avenue Seattle, Washington, beginning at the hour  
7 of 7:00 p.m., Mr. Shipley presiding.

8 \* \* \* \* \*

9 MR. SHIPLEY: Good evening, ladies and  
10 gentlemen. Thank you for coming tonight. My name is  
11 Dick Shipley, and I am the Director of Environment,  
12 Safety, and Health at Puget Sound Naval Shipyard.  
13 Tonight, I am serving as the presiding officer for this  
14 public meeting.

15 With me this evening is Mr. Jim Wrzeski, the Navy's  
16 reactor compartment disposal manager. Also with us  
17 tonight from the Department of Energy is Mr. Mark  
18 French. The Department of Energy is a cooperating  
19 agency in the development of the Environmental Impact  
20 Statement.

21 On August 15th, 1995, the Navy announced in the  
22 Federal Register the availability of the Draft  
23 Environmental Impact Statement, which we call the Draft  
24 EIS, on the disposal of decommissioned, defueled reactor  
25 plants from cruisers and OHIO and LOS ANGELES Class

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1 submarines. The Navy, in cooperation with the  
2 Department of Energy, has prepared this Draft EIS to  
3 focus on the potential for significant environmental  
4 impacts and to consider reasonable alternatives.

5 The management of spent fuel is not the subject of  
6 this EIS. The disposition of spent fuel was addressed  
7 in the DOE Environmental Impact Statement identified on  
8 this slide, with the Navy as a cooperating agency.

9 The Navy's Federal Register announcement scheduled  
10 public meetings at various locations in order to provide  
11 organizations and individuals with an interest in this  
12 matter with an opportunity to present their views. We  
13 are here this evening to conduct one of these scheduled  
14 public meetings.

15 Tonight's meeting is being held as part of the  
16 decision-making process required by the National  
17 Environmental Policy Act called NEPA. NEPA is our basic  
18 national charter for protection of the environment.  
19 NEPA procedures ensure that environmental information is  
20 available to public officials and citizens before  
21 decisions are made and before actions are taken.

22 The Draft EIS was developed based on public input  
23 received during the scoping phase of the NEPA process.

24 Tonight we are here to listen to what you have to  
25 say. We will not be directly responding to questions

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1 tonight. The purpose of tonight's meeting is to receive  
2 your input so that it can be addressed in the  
3 development of the final EIS. The purpose is not to  
4 engage in debate.

5 It is my responsibility to receive statements so  
6 that they can be considered in preparing the Final EIS.  
7 For that reason, the meeting is being recorded.

8 Copies of the agenda for tonight's meeting are  
9 available on the table in the back. It explains the  
10 order of our meeting this evening and will consist of a  
11 presentation by Mr. Wrzeski on the alternatives  
12 evaluated in the Draft EIS.

13 This presentation will last approximately 20  
14 minutes and will be followed by the formal comment  
15 period. This comment period is the time that we listen  
16 to you. Responses to each individual comment or  
17 question will be in the Final EIS.

18 After all comments have been given, we will  
19 conclude the meeting with closing remarks. I will  
20 afford an opportunity to those individuals and  
21 organizations who wish to speak. I would appreciate if  
22 anyone wishing to speak would fill out a registration  
23 form at the door.

24 Whether or not you speak this evening, you may also  
25 provide written comments to me or leave them with the

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1 staff at the registration table. Oral and written input  
2 will be considered equally in the development of the  
3 Final EIS.

4 If you desire to provide written comments at a  
5 later time, they should be sent to: Mr. John Gordon,  
6 Puget Sound Naval Shipyard, 1400 Farragut Avenue, Code  
7 1160, Bremerton, Washington 98314-5001.

8 Written comments postmarked by October 10th, 1995,  
9 will be considered in the preparation of the Final EIS.  
10 Comments postmarked after that date will be considered  
11 to the extent practical.

12 Before we begin receiving public input, I would  
13 like to introduce Mr. Wrzeski, who will provide a  
14 general overview of the alternatives which have been  
15 evaluated in the Draft EIS.

16 Mr. Wrzeski.

17 \* \* \* \* \*

**PRESENTATION**

18 MR. WRZESKI: Thank you, Mr. Shipley. Good  
19 evening, ladies and gentlemen.

20 By the 1980's, many of the Navy's submarines were  
21 reaching the end of their useful life. At that time,  
22 the Navy prepared an Environmental Impact Statement to  
23 evaluate various disposal methods for the radioactive  
24 components associated with the nuclear power plants on  
25

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1 these submarines.

2 In the 1984 Record of Decision, the Navy selected  
3 land burial of the reactor compartment as the disposal  
4 method for these components. Since then, the Navy has  
5 completed 50 successful shipments under the 1984  
6 program.

7 Now, in the 1990s, recent changes in the national  
8 defense structure have resulted in the down-sizing of  
9 the fleet, including nuclear-powered combatants.  
10 Because of this down-sizing, the Navy will soon need to  
11 address disposal of the reactor compartments associated  
12 with cruisers, OHIO Class submarines and LOS ANGELES  
13 Class submarines.

14 This EIS has been prepared because the  
15 approximately 100 reactor compartments from these  
16 classes of ships were not covered under the 1984 EIS.

17 This figure shows the location of the reactor  
18 compartments on a typical Navy cruiser and submarine.

19 The functional design of the ship's reactor  
20 compartment makes it an ideal disposal package. The  
21 compartment is completely enclosed by structural walls  
22 known as bulkheads and, in the case of a submarine, part  
23 of the enclosure is the ship's pressure hull.

24 The bulkheads contain lead shielding to protect the  
25 crew during the reactor operation. The bulkheads are

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1 designed to meet the shocks and stresses of a military  
2 ship under combat conditions.

3 These features make the reactor compartment a  
4 superior transportation and disposal package that is far  
5 stronger than typical industry containers used to  
6 dispose of low-level radioactive waste.

7 The remainder of the ship is recycled to reuse the  
8 metals.

9 Tonight I will first discuss the alternatives the  
10 Navy considered for disposal of the reactor plant.  
11 Later in my presentation, I will discuss the potential  
12 environmental consequences. In all of the alternatives  
13 considered, the spent fuel would be removed before  
14 initiating disposal.

15 The Navy evaluated several alternatives in this  
16 EIS. Land burial of the entire reactor compartment at  
17 Hanford, Washington, is our preferred alternative. We  
18 also looked at waterborne storage of the ship, which is  
19 the no-action alternative. We evaluated subdivision of  
20 the reactor compartment. This alternative disassembles  
21 the reactor plant and disposes of the components  
22 separately. Finally, we looked at above-ground storage  
23 of the reactor compartments at Hanford.

24 Now I would like to describe our preferred  
25 alternative. My presentation will focus mainly on the

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1 preferred alternative, even though the Draft EIS  
2 analyzes the others in considerable detail.

3 As discussed earlier, the reactor compartment makes  
4 an ideal disposal package. For this and other reasons  
5 that I'll discuss, the Navy has determined that burial  
6 of the entire reactor compartment at Hanford is the  
7 preferred alternative.

8 This is the same basic method as our current  
9 disposal program, which has been demonstrated to be  
10 safe, effective and is accomplished with no significant  
11 impact to workers, the public, or environment.

12 As I discuss the preferred alternative, I will be  
13 using slides taken from the Navy's current disposal  
14 program to illustrate the proposed method.

15 The reactor compartment would be separated from the  
16 rest of the ship and placed on a barge for waterborne  
17 transport. The sealed package would meet all Department  
18 of Transportation and Nuclear Regulatory Commission  
19 requirements. The barges used would meet all United  
20 States Coast Guard and Navy requirements.

21 The inset shows the transportation route proposed  
22 for all the alternatives that take an entire reactor  
23 compartment to Hanford. The shipments would leave from  
24 Puget Sound Naval Shipyard, proceed along the Washington  
25 coast, up the Columbia River to the Port of Benton near

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1 the Hanford site. This is the same route taken under  
2 the current disposal program.

3 I would like to go into some detail on the safety  
4 features we would use for waterborne transport of the  
5 reactor compartment.

6 We designed the waterborne transportation system  
7 conservatively. This means the transport system is  
8 capable of safely handling conditions much worse than we  
9 actually expect.

10 As you can see in this picture, the barges are  
11 designed with multiple tanks and watertight bulkheads  
12 between them. The barge will remain stable under storm  
13 conditions even if two of these tanks are damaged and  
14 completely flooded. Even more damage and flooding could  
15 be sustained and still the barge would remain floating.

16 Safety is further assured by not shipping in bad  
17 weather. We use only experienced towing contractors and  
18 always use a backup tug that follows the shipment.

19 In addition, the Navy designs the reactor  
20 compartment package with a number of engineered features  
21 that would facilitate location and salvage.

22 At the Port of Benton, the reactor compartment  
23 would be off-loaded from the barge, hauled over land and  
24 placed in a burial trench similar to what is shown in  
25 this picture.

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1       The proposed burial site for the reactor  
2 compartments is the low-level burial grounds located  
3 near the center of the Hanford site. These burial  
4 grounds are well suited to the permanent disposal of  
5 reactor compartments. The arid climate, plus existing  
6 soil characteristics are beneficial for waste disposal.  
7 In addition, the site is accessible by barge with a  
8 short overland haul.

9       Now I'd like to briefly describe the other  
10 alternatives.

11       The no-action alternative we evaluated is  
12 protective waterborne storage of the ship for an  
13 indefinite period. The locations considered for  
14 waterborne storage of the ship are Puget Sound Naval  
15 Shipyard in Bremerton, Washington and at Norfolk Naval  
16 Shipyard in Portsmouth, Virginia.

17       While the impacts are very small during storage,  
18 the no-action alternative does not provide for a  
19 permanent solution. The effort for final disposition  
20 would have to be undertaken sometime in the future.

21       In contrast to land burial of the reactor  
22 compartment package, in the subdivision alternative,  
23 rather than remain whole, the reactor compartment would  
24 be disassembled.

25       Because of the reactor compartment's rugged nature,

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1       the disassembly effort requires extensive structural  
2 work. This work would involve rigorous environmental  
3 protection techniques to remove the radioactive  
4 components.

5       Packaging of the large components would require  
6 that special shipping containers be designed and built  
7 for their disposal. Many would be large enough that  
8 shipment by truck or rail would not be feasible. These  
9 components would be disposed of at the Department of  
10 Energy sites such as Hanford or Savannah River.

11       The amount of smaller components to be processed  
12 and transported would be significantly greater under  
13 this alternative. This alternative requires 15 times  
14 the number of shipments as the preferred alternative.

15       The Navy also evaluated storing the reactor  
16 compartments above ground for an indefinite period. The  
17 location considered for storage is the Department of  
18 Energy site at Hanford.

19       Similar to the no-action alternative, the impacts  
20 are very small during storage. However, this  
21 alternative also does not provide for a permanent  
22 solution and some future action would be required.

23       Now I am going to talk about the environmental  
24 consequences of the alternatives we considered.

25       Our evaluation was broken down into three segments

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1 that reflect where potential impacts would take place:  
2 at shipyards, along the transportation route, and at the  
3 disposal site.

4 For each of these segments, I will discuss the  
5 results of the environmental studies that were  
6 performed. Several of the studies were performed by  
7 independent, technical organizations outside the Navy,  
8 such as Pacific Northwest Laboratory.

9 The environmental areas we studied for shipyards  
10 are summarized on this slide. We looked at the possible  
11 effects from industrial work such as welding,  
12 sandblasting, and hazardous material removal.

13 We determined that the principal effect is that  
14 shipyard workers would receive some exposure to  
15 radiation. Personnel radiation exposures are maintained  
16 as low as reasonably achievable and kept within  
17 guidelines set by the Nuclear Regulatory Commission.  
18 Total exposure is expected to be much higher in the  
19 subdivision alternative than if the reactor compartment  
20 were left whole.

21 The industrial procedures used to prepare reactor  
22 compartments for disposal would be the same as those  
23 currently used at shipyards. These procedures are in  
24 compliance with Navy Occupational Safety and Health  
25 requirements. These requirements are designed to

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1 protect workers from industrial hazards associated with  
2 their work.

3 The measures used by the Navy to protect its own  
4 workers from potential hazards during disposal work  
5 would protect the surrounding public and the environment  
6 as well.

7 The environmental areas we studied for  
8 transportation are summarized on this slide. The  
9 potential health effects to the general population and  
10 the transport crew were evaluated for normal conditions  
11 of transport and accident scenarios. The potential  
12 impacts from the transport were found to be very low for  
13 all scenarios considered.

14 In the extremely unlikely event that a barge did  
15 sink and the water entered the reactor compartment, no  
16 significant environmental impact should occur. This is  
17 because 99.9 percent of the radioactivity in the reactor  
18 compartment is part of the reactor plants' metal  
19 components and can only be released through corrosion.  
20 The remaining radioactivity is contained within the  
21 sealed reactor plant systems.

22 There would be no environmental consequences from  
23 other hazardous substances. This is because nearly all  
24 are solids and would, therefore, not be released to the  
25 surrounding waters.

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1 The environmental areas we studied at the burial  
2 site are summarized on this slide. The focus of our  
3 analysis was the movement of radioactive and other  
4 hazardous materials from the disposal site. We call  
5 this process migration.

6 It is important to point out a couple of areas  
7 where studies assumed unfavorable conditions. Making  
8 these assumptions mean the study results are worse than  
9 we actually expect.

10 Hanford has an arid climate with only 6 inches of  
11 rainfall per year. The study assumed that there is ten  
12 times more moisture in contact with the buried  
13 compartments than is expected under current conditions.

14 The migration study also assumed that the hazardous  
15 materials were exposed and immediately available for  
16 movement through the ground. When in fact, the  
17 corrosion study determined that the reactor compartments  
18 are so robust that they will contain these materials for  
19 at least 600 years.

20 This slide summarizes the results of the migration  
21 study.

22 The study determined that it would take over  
23 700,000 years for lead to reach the Columbia River.  
24 Most of the radioactive material would decay away before  
25 being released from the reactor compartments.

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1 Radioactive nickel would make up the bulk of what is  
2 released and this nickel would take over 200,000 years  
3 to reach the river.

4 For all of the substances considered in this  
5 evaluation, concentrations would not exceed current  
6 groundwater protection standards.

7 Because these results are based on the unfavorable  
8 assumptions, we expect the actual movement of  
9 radioactive and other hazardous materials to take much  
10 longer and result in even lower concentrations.

11 Now I would like to discuss the potential impact of  
12 radiation exposure to workers and the public.

13 The health concern of low-level exposure to  
14 radiation is the potential to induce cancer over time,  
15 referred to as latent cancer. Many studies have been  
16 done to determine the effect radiation would have on the  
17 chance of a person developing cancer.

18 Our studies determined the potential radiation  
19 exposures for all of the alternatives evaluated. We  
20 then used conversion factors approved by the  
21 International Council on Radiological Protection to  
22 determine the number of potential latent cancer  
23 fatalities.

24 First, let's look at our analysis of impacts to the  
25 shipyard workers.

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To dispose of the entire reactor compartment, no more than .6 additional latent cancer fatalities are projected among shipyard workers. This is for disposal of all 100 reactor compartments.

The subdivision alternative involves significantly more work. Because of this, the shipyard workers would receive more radiation exposure than if the reactor compartment were left whole. Depending on whether subdivision occurred at the time of decommissioning or was delayed ten years, 13 to 44 additional latent cancer fatalities are projected among shipyard workers.

This impact on shipyard workers is a key discriminator between land burial of the entire reactor compartment and the subdivision alternative.

For the general public, we looked at the effects of transporting the reactor compartment to the burial site. The population in the vicinity of the transport route is about 200,000 people. As you can see in this table, there would be virtually no affect to dispose of all 100 compartments regardless of the alternative selected.

There are projected to be no more than .003 total additional cancer fatalities as a result of the land burial alternative. What this number really means is that the effect of land burial of all 100 reactor compartments at Hanford is insignificant when compared

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to the chance of being struck by lightning.

We concluded that all of the alternatives evaluated would have minimal impact on the general public and the environment.

For workers, however, land burial of the entire reactor compartment at Hanford would result in a much lower potential for latent cancer fatalities as compared to the subdivision alternative.

And finally, land burial of the entire reactor compartment at Hanford also has the advantage of being a permanent solution.

I thank you for your courtesy and attention.

Mr. Shipley.

\* \* \* \* \*

MR. SHIPLEY: Ladies and gentlemen, it is important that all of those who wish to speak are provided with an opportunity to do so.

Out of courtesy, I intend to recognize representatives of government organizations and then individual citizens.

I request your cooperation tonight while people are speaking.

The procedure for public comment will be as follows: I will announce each registered speaker; when called, please proceed to and use one of the microphones

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provided; please state your name for the record; if you are representing an organization, please give the name of the organization as well; please direct all of your comments to me.

\* \* \* \* \*

PUBLIC COMMENT PERIOD

MR. SHIPLEY: We are pleased to have as our first speaker tonight Cynthia Sarthou. Cynthia?

MS. SARTHOU: My name is Cynthia Sarthou.

I'm the staff attorney for Heart of America Northwest, 1305 Fourth Avenue, Suite 208, Seattle, Washington 98102. We are an organization of 15,000 members located in the City of Seattle. Our members are throughout the state of Washington and Oregon, and we are interested in this issue.

I brought some comments that I would like to read, and then I have, I guess, one or two little things to add to the presentation.

1) The Draft Environmental Impact Statement professes to reveal and discuss all possible environmental impacts attendant to decommissioning and transportation of the specified nuclear naval reactor plants. The Navy has been reluctant, however, to allow the public to verify the validity of the information provided within the EIS.

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In fact, recently, the Navy has requested that Restricted Area 2 in Sinclair Inlet be deemed entirely off-limits to public access. In so doing, the Navy is suggesting to the public that it is unwilling to disclose or hold up to objective scrutiny the environmental impacts of decommissioning and transportation operations in Puget Sound.

2) The reactor compartments contain lead- and PCB-laden materials. Although deemed a low-level burial ground, the area slated for disposal is, in effect, a system of large trenches with minimal protections against leaching of contaminants. It is imperative that the EIS address the potential environmental impacts of these materials in the absence of institutional controls.

Equally importantly, these materials, if disposed of at the Hanford low-level burial grounds, must be subject to regulation under the Washington State Dangerous Waste Regulations to minimize the effect of disposal of these materials.

3) The Navy has recently instructed the Department of Energy to bar public and press viewing of burial grounds containing naval reactor compartments during USDOE tours of the Hanford Nuclear Reservation. By this action, the Navy is implicitly stating that it is

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unwilling to open its disposal practices to public scrutiny. This is objectionable. There is no national security justification for denying the public scrutiny of burial practices, and therefore they should not be barred from seeing these practices.

4) The EIS predicts the need for four hectares, or ten acres, for disposal of the compartments addressed by this EIS. Approximately four hectares, or ten acres, has already been used for the Pre-LOS ANGELES Class compartments, and additional lands will be required for reactor compartments of subsequent classes of vessels slated for decommissioning.

The Navy should minimize its use of Hanford lands for disposal of these materials. The public does not consider Hanford a sacrifice zone and objects to the continual use of large areas of Hanford for Navy and DOE waste disposal. Moreover, the cost of Hanford lands should be included in any analysis of the fiscal cost of this alternative.

5) The EIS also refers to the production of 1,625 cubic meters of mixed waste. The EIS does not appear to address disposal of these materials. It is evident that Hanford's low-level burial ground is not appropriate for disposal of these low-level mixed wastes. Accordingly, the EIS must address a site for disposal of these

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materials and the environmental impacts attendant thereto.

The production of mixed waste should also be minimized and materials recycled where possible. The EIS should consider inclusion of recyclable materials within the proposed United States Department of Energy Recycle program or policy, known as Recycle 2000. This would minimize the amount of land needed for disposal of this material.

The other comment I have from this basic presentation was that I was somewhat disturbed by the calculations of transportation time of contaminants from the burial ground. I would just like the EIS to possibly consider that more fully.

I am not sure, but I'm pretty sure that those are based upon USDOE calculations. And in the past ten years, we have been shown that the USDOE's calculations are erroneous and overestimate the travel time by a significant amount, especially if you look at tritium quantities that were estimated not to be reaching the Columbia River for hundreds of years which are now reaching the Columbia River. So we would suggest that you maybe more carefully scrutinize that.

\* \* \* \* \*

MR. SHIPLEY: Thank you very much, Ms. Sarthou.

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Ladies and gentlemen, I have no further registrations. Is anyone registered to speak to whom I have not given the opportunity?

I'd like to thank you all on behalf of the United States Navy for taking the time to participate in the hearing tonight. We appreciated the opportunity to hear your comments, and we'll work to make sure they are addressed in the Final EIS.

This meeting is adjourned.

HEARING CONCLUDED: 7:25 p.m.

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C-E-R-T-I-F-I-C-A-T-E

STATE OF WASHINGTON )  
 ) ss.  
COUNTY OF PIERCE )

I, KAREN M. RUSK, a duly authorized Notary Public in and for the State of Washington, do hereby certify that this is a true transcript of the Public Hearing regarding the Draft Environmental Impact Statement on Disposal of Decommissioned, Defueled Cruiser, OHIO Class and LOS ANGELES Class Naval Reactor Plants; that the minutes of said meeting were recorded in shorthand and later reduced to typewriting; and that the above and foregoing is a true and correct transcript of said meeting.

I do further certify that I am not a relative of, employee of, or counsel for either of said parties or otherwise interested in the event of said proceedings.

I HAVE HEREUNTO set my hand and affixed my official seal this 27th day of September, 1995.



*Karen M. Rusk*  
Karen M. Rusk, Notary Public in  
and for the State of Washington,  
residing at Tacoma,  
CSR #: RUSK\*KM416SR

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COMMENTS OF HEART OF AMERICA NORTHWEST ON  
THE NAVY'S DRAFT ENVIRONMENTAL IMPACT STATEMENT  
ON DISPOSAL OF DECOMMISSIONED, DEFUELED, CRUISER,  
OHIO CLASS AND LOS ANGELES CLASS SUBMARINE NAVAL REACTOR PLANTS

1. Although the Navy in its Draft Environmental Impact Statement professes to reveal and discuss all possible environmental impacts attendant to decommissioning and transportation of the specified Naval Reactor Plants, the Navy has been reluctant to allow the public to verify the validity of the information provided within the EIS. In fact, recently, the navy has requested that Restricted Area 2 in Sinclair Inlet be deemed entirely off-limits to public access. In so doing, the navy is suggesting to the public that it is unwilling to disclose or hold up to objective scrutiny the environmental impacts of decommissioning and transportation operations in Puget Sound.

4.12

2. The reactor compartments contain lead and PCB laden materials. Although deemed a "low level burial" ground, the area slated for disposal is in effect a system of large trenches with minimal protections against leaching of contaminants. It is imperative that the EIS address the potential environmental effects of these materials in the absence of institutional controls. Equally importantly, these materials, if disposed of at the Hanford Low Level Burial Grounds, must be subject to regulation under the Washington State Dangerous Waste Regulations, to minimize the effect of disposal of these materials.

4.13

3. The Navy has recently instructed the Department of Energy to bar public and press viewing of the burial grounds containing naval reactor compartments during USDOE tours of the Hanford Nuclear Reservation. By this action, the Navy is implicitly stating that it is unwilling to open its disposal practices to public scrutiny. This is objectionable. There is no national security justification for deny the public scrutiny of burial practices.

4.14

4. The EIS predicts the need for 4 hectares (or 10 acres) for disposal of the compartments addressed by this EIS. Approx. 4 hectare (or 10 acres) has already been used for the Pre-Los Angeles Class compartments and additional lands will be required for reactor compartments of subsequent Classes of Vessels slated for decommissioning. The Navy should minimize its use of Hanford Lands for Disposal of these materials. The public does not consider Hanford a "sacrifice zone" and objects to the continual use of Hanford large areas of the Hanford Nuclear Reservation for Navy and DOE waste disposal. Moreover, the cost of Hanford Lands should be included in any analysis of the fiscal cost of this alternative.

4.15

5. The EIS also refers to the production of 1625 cubic meters of mixed waste. The EIS does not appear to address disposal of these materials. It is evident that Hanford's Low Level Burial Ground is not appropriate for disposal of these materials. Accordingly, the EIS must address a site for disposal of these materials and the environmental impacts attendant thereto.

3.1

The production of mixed waste should be minimized and materials recycled where possible. The EIS should consider inclusion of recyclable materials within the proposed United States Department of Energy Recycle Policy/Program (Recycle 2000). This would minimize the amount of land needed for disposal of this material.

3.1

COPY

## P R O C E E D I N G S

PUBLIC HEARING  
DRAFT ENVIRONMENTAL IMPACT STATEMENT ON  
DISPOSAL OF DECOMMISSIONED, DEFUELED CRUISER,  
OHIO CLASS AND LOS ANGELES CLASS NAVAL REACTOR PLANTS

Shilo Inn-Rivershore  
International 1 Room  
50 Comstock Street  
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REPORTED BY PAULA SOMERS  
September 21, 1995

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## APPEARANCES

MR. DICK SHIPLEY - Director of Environment, Safety, and  
Health; Puget Sound Naval Shipyard  
MR. JIM WRZESKI - Reactor Compartment Disposal Manager,  
U.S. Navy  
MR. MARK FRENCH - Department of Energy

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1 The Assembly of the Public Hearing, regarding  
2 the Draft Environmental Impact Statement on the disposal  
3 of decommissioned, defueled cruiser, OHIO Class and LOS  
4 ANGELES Class naval reactor plants, convened on the 21st  
5 of September, 1995, at the Shilo Inn-Rivershore,  
6 International 1 Room, 50 Comstock Street, Richland,  
7 Washington 99352, beginning at the hour of 6:59 p.m.,  
8 Mr. Shipley presiding.

9 \* \* \* \* \*

10 MR. SHIPLEY: Good evening, ladies and  
11 gentlemen. Thank you for coming. My name is Dick  
12 Shipley. I'm the Director of Environment, Safety, and  
13 Health at Puget Sound Naval Shipyard. Tonight I'm  
14 serving as the presiding officer for this public  
15 meeting.

16 Also with me this evening is Mr. Jim Wrzeski, the  
17 Navy's reactor compartment disposal manager. With us  
18 tonight from the Department of Energy is Mr. Mark  
19 French. The Department of Energy is a cooperating  
20 agency in the development of the Environmental Impact  
21 Statement.

22 On August 15th, 1995, the Navy announced in the  
23 Federal Register the availability of the Draft  
24 Environmental Impact Statement, which we call the Draft  
25 EIS, on the disposal of decommissioned, defueled,

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1 reactor plants from cruisers, OHIO Class and LOS ANGELES  
2 Class submarines. The Navy, in cooperation with the  
3 Department of Energy, has prepared this Draft EIS to  
4 focus on the potential for significant environmental  
5 impacts and to consider reasonable alternatives.

6 The management of spent fuel is not the subject of  
7 this EIS. The disposition of spent fuel was addressed  
8 in the Department of Energy Environmental Impact  
9 Statement identified on this slide, with the Navy as a  
10 cooperating agency.

11 The Navy's Federal Register announcement scheduled  
12 public meetings at various locations in order to provide  
13 organizations and individuals with an interest in this  
14 matter with an opportunity to present their views. We  
15 are here this evening to conduct one of these scheduled  
16 public meetings.

17 Tonight's meeting is being held as a part of the  
18 decision-making process required by the National  
19 Environmental Policy Act called NEPA. NEPA is our basic  
20 national charter for protection of the environment.  
21 NEPA procedures ensure that environmental information is  
22 available to public officials and private citizens  
23 before decisions are made and before actions are taken.

24 The Draft EIS was developed based on public input  
25 received during the scoping phase of the NEPA process.

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1           Tonight we are here to listen to what you have to  
2           say. We will not be directly responding to questions  
3           tonight. The purpose of tonight's meeting is to receive  
4           your input so that it can be addressed in the  
5           development of the Final Environmental Impact Statement.  
6           The purpose is not to engage in debate.

7           It's my responsibility to receive statements so  
8           that they can be considered in preparing the Final EIS.  
9           For that reason, the meeting is being recorded tonight.

10          Copies of the agenda for tonight's meeting are  
11          available on the table in the back. It explains that  
12          the order of our meeting this evening will consist of a  
13          presentation by Mr. Wrzeski on the alternatives  
14          evaluated in the Draft EIS.

15          This presentation will last approximately 20  
16          minutes and will be followed by the formal comment  
17          period. This comment period is the time when we listen  
18          to you. Responses to each individual comment or  
19          question will be in the Final EIS.

20          After all comments have been given, we will  
21          conclude the meeting with closing remarks. I will  
22          afford an opportunity to those individuals and  
23          organizations who wish to speak. I would appreciate it  
24          if anyone wishing to speak would fill out a registration  
25          form at the door.

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1           Whether or not you choose to speak this evening,  
2           you may also provide written comments to me or leave  
3           them with the staff at the door. Oral and written input  
4           will be considered equally in the development of the  
5           Final EIS.

6           If you desire to provide written comments at a  
7           later time, they should be sent to: Mr. John Gordon,  
8           Puget Sound Naval Shipyard, 1400 Farragut Avenue, Code  
9           1160, Bremerton, Washington 98314-5001.

10          Written comments postmarked by October 10th, 1995,  
11          will be considered in preparation of the Final EIS.  
12          Comments postmarked after that date will be considered  
13          to the extent practical.

14          Before we begin receiving public input, I would  
15          like to introduce Mr. Wrzeski, who will provide a  
16          general overview of the alternatives which have been  
17          evaluated in the DEIS.

18          Mr. Wrzeski.

19                               \* \* \* \* \*

**PRESENTATION**

20                               MR. WRZESKI: Thank you, Mr. Shipley. Good  
21                               evening, ladies and gentlemen.

22                               By the 1980s, many of the Navy's submarines were  
23                               reaching the end of their useful life. At that time,  
24                               the Navy prepared an Environmental Impact Statement to  
25

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1 evaluate various disposal methods for the radioactive  
2 components associated with the nuclear power plants on  
3 these submarines.

4 In the 1984 Record of Decision, the Navy selected  
5 land burial of the reactor compartment as the disposal  
6 method for these components. Since then, the Navy has  
7 completed 50 successful shipments under the 1984  
8 program.

9 Now, in the 1990s, recent changes in the national  
10 defense structure have resulted in downsizing of the  
11 fleet, including nuclear-powered combatants. Because of  
12 this downsizing, the Navy will soon need to address  
13 disposal of the reactor compartments associated with  
14 cruisers, OHIO Class submarines, and LOS ANGELES Class  
15 submarines.

16 This EIS has been prepared because the  
17 approximately 100 reactor compartments from these  
18 classes of ships were not covered under the 1984 EIS.

19 This figure shows the location of reactor  
20 compartments on a typical Navy cruiser and submarine.

21 The functional design of the ship's reactor  
22 compartment makes it an ideal disposal package. The  
23 compartment is completely enclosed by structural walls  
24 known as bulkheads and, in the case of the submarine,  
25 part of the enclosure is the ship's pressure hull.

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1 The bulkheads contain lead shielding to protect the  
2 crew during reactor operation. The bulkheads are  
3 designed to meet the shocks and stresses of a military  
4 ship under combat conditions.

5 These features make the reactor compartment a  
6 superior transportation and disposal package that is far  
7 stronger than typical industry containers used to  
8 dispose of low-level radioactive waste.

9 The remainder of the ship is recycled to reuse the  
10 metals.

11 Tonight I will first discuss the alternatives the  
12 Navy considered for disposal of the reactor plant.  
13 Later in my presentation, I will cover the potential  
14 environmental consequences. In all of the alternatives  
15 considered, the spent fuel would be removed before  
16 initiating disposal.

17 The Navy evaluated several alternatives in this  
18 EIS. Land burial of the entire reactor compartment at  
19 Hanford, Washington, is our preferred alternative. We  
20 also looked at waterborne storage of the ship, which is  
21 the no-action alternative. We evaluated subdivision of  
22 the reactor compartment. This alternative disassembles  
23 the reactor plant and disposes of the components  
24 separately. Finally, we looked at above-ground storage  
25 of the reactor compartments at Hanford.

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1 Now we'd like to describe our preferred  
2 alternative. Our presentation will focus mainly on the  
3 preferred alternative, even though the Draft EIS  
4 analyzes the others in considerable detail.

5 As discussed earlier, the reactor compartment makes  
6 an ideal disposal package. For this and other reasons  
7 that I'll discuss, the Navy has determined that burial  
8 of the entire reactor compartment at Hanford is the  
9 preferred alternative.

10 This is the same basic method as our current  
11 disposal program, which has been demonstrated to be  
12 safe, effective, and is accomplished with no significant  
13 impact to workers, the public, or environment.

14 As I discuss the preferred alternative, I will be  
15 using slides taken from the Navy's current disposal  
16 program to illustrate the proposed method.

17 The reactor compartment would be separated from the  
18 rest of the ship and placed on a barge for waterborne  
19 transport. The sealed package would meet all Department  
20 of Transportation and Nuclear Regulatory Commission  
21 requirements. The barges used would meet all the United  
22 States Coast Guard and Navy requirements.

23 The inset shows the transportation route proposed  
24 for all the alternatives that take an entire reactor  
25 compartment to Hanford. The shipments would leave from

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1 Puget Sound Naval Shipyard and proceed along the  
2 Washington coast, up the Columbia River to the Port of  
3 Benton, near the Hanford Site. This is the same route  
4 taken under the current disposal program.

5 I would like to go into some detail on the safety  
6 features we would use for waterborne transport of the  
7 reactor compartment.

8 We designed the waterborne transport system  
9 conservatively. This means the transport system is  
10 capable of safely handling conditions that are much  
11 worse than we actually expect.

12 As you can see in this picture, the barges are  
13 designed with multiple tanks and watertight bulkheads  
14 between them. The barge will remain stable under storm  
15 conditions even if two of these tanks are damaged and  
16 completely flooded. Even more damage and flooding could  
17 be sustained, and still the barge would remain floating.

18 Safety is further assured by not shipping in bad  
19 weather. We use only experienced towing contractors and  
20 always use a backup tug that follows the shipment.

21 In addition, the Navy designs the reactor  
22 compartment package with a number of engineered features  
23 that would facilitate location and salvage.

24 At the Port of Benton, the reactor compartment  
25 would be off-loaded from the barge, hauled over land,

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1 and placed in a burial trench similar to what is shown  
2 in this picture.

3 The proposed burial site for reactor compartments  
4 is the low-level burial grounds located near the center  
5 of the Hanford Site. These burial grounds are well  
6 suited to the permanent disposal of reactor  
7 compartments. The arid climate, plus existing soil  
8 characteristics, are beneficial for waste disposal. In  
9 addition, the site is accessible by barge with a short  
10 overland haul.

11 Now I'd like to briefly describe the other  
12 alternatives.

13 The no-action alternative we evaluated is  
14 protective waterborne storage of the ship. The  
15 locations considered for waterborne storage of the ship  
16 are Puget Sound Naval Shipyard in Bremerton, Washington,  
17 and Norfolk Naval Shipyard in Portsmouth, Virginia.

18 While the impacts are very small during storage,  
19 the no-action alternative does not provide for a  
20 permanent solution, and the effort for final disposition  
21 would have to be undertaken sometime in the future.

22 In contrast to land burial of the reactor  
23 compartment package in the subdivision alternative,  
24 rather than remain whole, the reactor compartment would  
25 be disassembled.

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1 Because of the reactor compartment's rugged nature,  
2 this disassembly effort requires extensive structural  
3 work. This work would involve rigorous environmental  
4 protection techniques to remove the radioactive  
5 components.

6 Packaging of the large components would require  
7 that special shipping containers be designed and built  
8 for their disposal. Many would be large enough that  
9 shipment by truck or rail would not be feasible. These  
10 components would be disposed of at Department of Energy  
11 sites such as Savannah River or Hanford.

12 The amount of smaller components to be processed  
13 and transported would be significantly greater under  
14 this alternative. This alternative requires 15 times  
15 the number of shipments as the preferred alternative.

16 The Navy also evaluated storing the reactor  
17 compartments above ground for an indefinite period.

18 The location considered for storage is the  
19 Department of Energy site at Hanford.

20 Similar to the no-action alternative, the impacts  
21 are very small during the storage. However, this  
22 alternative also does not provide for a permanent  
23 solution, and some future action would be required.

24 Now I'm going to talk about the environmental  
25 consequences of the alternatives we considered.

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1 Our evaluation was broken down into three segments  
2 that reflect where potential impacts would take place:  
3 at shipyards, along the transportation route, and at the  
4 disposal site.

5 For each of these segments I will discuss the  
6 results of the environmental studies that were  
7 performed. Several of these studies were performed by  
8 independent technical organizations outside the Navy,  
9 such as Pacific Northwest Laboratory.

10 The environmental areas we studied for shipyards  
11 are summarized on this slide. We looked at the possible  
12 effects from industrial work such as welding,  
13 sandblasting, and hazardous material removal.

14 We determined that the principal effect is that  
15 shipyard workers would receive some exposure to  
16 radiation. Personnel radiation exposures are maintained  
17 as low as reasonably achievable and would be kept within  
18 the guidelines set by the Nuclear Regulatory Commission.  
19 Total exposure is expected to be much higher in the  
20 subdivision alternative than if the reactor compartment  
21 were left whole.

22 The industrial procedures used to prepare reactor  
23 compartments for disposal would be the same as those  
24 currently used at shipyards. These procedures are in  
25 compliance with Navy Occupational Safety and Health

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1 requirements. These requirements are designed to  
2 protect workers from industrial hazards associated with  
3 their work.

4 The measures used by the Navy to protect its own  
5 workers from potential hazards during disposal work  
6 would protect the surrounding public environment as  
7 well.

8 The environmental areas we studied for  
9 transportation are summarized on this slide. Potential  
10 health effects to the general population and the  
11 transport crew were evaluated for normal conditions of  
12 transport and accident scenarios. The potential impacts  
13 from transport were found to be very low for all the  
14 scenarios considered.

15 In the extremely unlikely event that a barge did  
16 sink and water entered the reactor compartment, no  
17 significant environmental impact would occur. This is  
18 because 99.9 percent of the radioactivity in the reactor  
19 compartment is part of the reactor plant's metal  
20 components and can only be released through corrosion.  
21 The remaining radioactivity is contained within the  
22 sealed reactor plant systems.

23 There would be no environmental consequences from  
24 other hazardous substances. This is because nearly all  
25 are solids and would, therefore, not be released to

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1 surrounding waters.

2 The environmental areas we studied at the burial  
3 site are summarized on this slide. The focus of our  
4 analysis was the movement of radioactive and other  
5 hazardous materials from the burial site. We call this  
6 process migration.

7 It's important to point out a couple areas where  
8 the studies assumed unfavorable conditions. Making  
9 these assumptions mean the study results are worse than  
10 we actually expect.

11 Hanford has an arid climate with only about 6  
12 inches of rainfall per year. The study assumed that  
13 there is ten times more moisture in contact with the  
14 burial compartments than is expected under current  
15 conditions.

16 The migration study also assumed that the hazardous  
17 materials were exposed and immediately available for  
18 movement through the ground, when, in fact, corrosion  
19 studies determined that the reactor compartments are so  
20 robust that they will contain these materials for at  
21 least 600 years.

22 This slide summarizes the results of the migration  
23 study.

24 The study determined that it would take over  
25 700,000 years for lead to reach the Columbia River.

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1 Most of the radioactive material would decay away before  
2 being released from the reactor compartments.

3 Radioactive nickel would make up the bulk of what is  
4 released, and this nickel would take over 200,000 years  
5 to reach the river.

6 For all substances considered in this evaluation,  
7 concentrations would not exceed current groundwater  
8 protection standards.

9 Because these results are based on the unfavorable  
10 assumptions, we expect the actual movement of  
11 radioactive and other hazardous materials to take much  
12 longer and result in even lower concentrations.

13 Now I'd like to discuss the potential impact of  
14 radiation exposure to workers and the public.

15 The health concern of low-level exposure to  
16 radiation is the potential to induce cancer over time,  
17 referred to as latent cancer. Many studies have been  
18 done to determine the effect radiation would have on the  
19 chance of a person developing cancer.

20 Our studies determined the potential radiation  
21 exposures for all the alternatives evaluated. We then  
22 used conversion factors approved by the International  
23 Council on Radiological Protection to determine the  
24 number of potential latent cancer fatalities.

25 First, let's look at our analysis of impacts to

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1 shipyard workers.

2 To dispose of the entire reactor compartment, no  
3 more than .6 additional latent cancer fatalities are  
4 projected among shipyard workers. This is for disposal  
5 of all 100 reactor compartments.

6 The subdivision alternative involves significantly  
7 more work. Because of this, shipyard workers would  
8 receive more radiation exposure than if the reactor  
9 compartment were left whole. Depending on whether  
10 subdivision occurred at the time of decommissioning or  
11 was delayed ten years, 13 to 44 additional latent cancer  
12 fatalities are projected among shipyard workers.

13 This impact on shipyard workers is a key  
14 discriminator between land burial of the entire reactor  
15 compartment and the subdivision alternative.

16 For the general public, we looked at the effects of  
17 transporting the reactor compartments to the burial  
18 site. The population in the vicinity of the transport  
19 route is about 200,000 people. As you can see in this  
20 table, there would be virtually no effect to dispose of  
21 all 100 reactor compartments regardless of the  
22 alternative selected.

23 There are projected to be no more than .003 total  
24 additional cancer fatalities as a result of the land  
25 burial alternative. Now, what this number really means

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1 is that the effect of land burial of all 100 reactor  
2 compartments at Hanford is insignificant when compared  
3 to the chance of being struck by lightning.

4 We concluded all of the alternatives evaluated  
5 would have minimal impact on the general public and the  
6 environment.

7 For workers, however, land burial of the entire  
8 reactor compartment at Hanford would result in a much  
9 lower potential for latent cancer fatalities as compared  
10 to the subdivision alternative.

11 And, finally, land burial of the entire reactor  
12 compartment at Hanford also has the advantage of being a  
13 permanent solution.

14 I thank you for your courtesy and attention.

15 Mr. Shipley.

16 \* \* \* \* \*

17 MR. SHIPLEY: Ladies and gentlemen, it is  
18 important that all who wish to speak tonight are  
19 provided with an opportunity to do so.

20 Out of courtesy, I intend to recognize  
21 representatives of government organizations and then  
22 individual citizens.

23 I request your cooperation and courtesy tonight  
24 while people are speaking.

25 The procedure for public comment will be as

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COMMENTS - by Mr. Shipley  
PUBLIC COMMENT - by Mr. Dillman

19

1 follows: I will announce each registered speaker; when  
2 called, please proceed to and use one of the microphones  
3 provided; please state your name for the record; if you  
4 are representing an organization, please give the name  
5 of the organization as well; all comments should be  
6 directed to me.

7 We are pleased to have as our first speaker  
8 tonight, Mr. Dave Dillman of TRIDEC.

9 Mr. Dillman.

10 \* \* \* \* \*

PUBLIC COMMENT PERIOD

11 MR. DILLMAN: Good evening. Thank you. My  
12 name is Dave Dillman. I'm Senior Vice President,  
13 Economic Transition, for TRIDEC, 901 North Colorado,  
14 Kennewick, Washington 99336.

15 What I'd like to do is - I've already submitted  
16 written comments - I'd just like to paraphrase those, if  
17 I could.

18 TRIDEC is the Tri-Cities' community not-for-profit  
19 Tri-Cities Industrial Development Council, representing  
20 approximately 600 businesses and agencies throughout the  
21 mid-Columbia region.

22 The purpose of our organization for the past 30  
23 years has tried to look at the potential industrial  
24 recruitment for the Tri-Cities community as it relates  
25

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COMMENTS - by Mr. Shipley  
PUBLIC COMMENT - by Mr. Dillman

20

1 to bringing all the economic development bodies  
2 together. Representing the port, the cities, all those  
3 respective chambers of each of the communities, and  
4 trying to create a community one-voice agenda relative  
5 to the economic transition for the Tri-Cities,  
6 specifically tonight, relating to the Hanford Site.

7 Because of the uniqueness of Hanford - particularly  
8 in the last eight months, with the Congressional budget  
9 reductions, the work force reduction of approximately  
10 4700 workers in 1995 - the role and mission of Hanford  
11 and how the Tri-Cities relates to that transition has  
12 changed significantly. And, in that, the past has been  
13 somewhat not much of a concern for the Tri-Cities  
14 community relating to what was being done or shipped to  
15 the Hanford Site.

16 That role and mission has been changed  
17 significantly in that as we proceed forward to try to do  
18 industrial recruitment both on the business side, the  
19 tourism side, relating to the development of  
20 agribusiness in our community, we feel there is  
21 definitely economic adverse effects. That is not really  
22 part of the Draft EIS at this point. What we're  
23 formally requesting is that the record of decision in  
24 this matter that the U.S. Navy address the issue of an  
25 advice on how to propose to work with the community in

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mitigating the adverse impacts of the reactor burial.

TRIDEC does not express objections for a preferred alternative. We believe that further examination of the alternative is required from the standpoint of an economic and social impact upon the community. With that, to clarify what's the reasoning behind TRIDEC's agenda on this issue - as we have done over the last couple years - we are finding that as we are trying to diversify our economic base, it is very difficult for us to recruit businesses when we have the issue of both Hanford attached to any potential recruitment.

As part of that, there's been enough publicity throughout the region that any time you have Hanford relating to a particular issue, whether it's transportation, bringing waste into the Hanford Site, or Hanford hits the paper in any reason, we have a great difficulty in trying to work with the business constituency of saying: "Come to the Tri-Cities. Hanford is not in issue." And yet the perception is that this continues to be moving forward as: "Hanford: The nuclear waste site capital of the world."

So we would like to have an opportunity to have the Navy look into the Draft EIS, of saying, how can we help mitigate -- How can we help the Tri-Cities community in working through some type of economic and social impact

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process that would be supportive of the Tri-Cities community and help us in this diversity project that we have going on.

I appreciate the confidence, and hopefully the Tri-Cities community can work with the United States Navy and the Department of Energy.

Thank you.

\* \* \* \* \*

MR. SHIPLEY: Thank you very much, Mr. Dillman.

Ladies and gentlemen, I have no further registrations. Has anyone registered to speak to whom I have not given the opportunity?

I want to thank you all on behalf of the United States Navy for taking the time to participate in the hearing tonight. We appreciated the opportunity to hear your comments and will work to make sure they are addressed in the Final EIS. Thank you.

This meeting is adjourned.

HEARING CONCLUDED: 7:27 p.m.

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## C-E-R-T-I-F-I-C-A-T-E

STATE OF WASHINGTON )  
COUNTY OF KING ) ss.

I, PAULA SOMERS, a duly authorized Notary Public in and for the State of Washington, do hereby certify that this is a true transcript of the Public Hearing regarding the Draft Environmental Impact Statement on Disposal of Decommissioned, Defueled Cruiser, OHIO Class and LOS ANGELES Class Naval Reactor Plants; that the minutes of said meeting were recorded in shorthand and later reduced to typewriting; and that the above and foregoing is a true and correct transcript of said meeting.

I do further certify that I am not a relative of, employee of, or counsel for either of said parties or otherwise interested in the events of said proceedings.

I HAVE HEREUNTO set my hand and affixed my official seal this 27th day of September, 1995.

  
Paula Somers, Notary Public  
in and for the State of  
Washington, residing at Renton.  
CSR #: 299-06

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**TRIDEC**

TRI-CITY INDUSTRIAL DEVELOPMENT COUNCIL

901 N. Colorado • Kennewick, WA 99336-7885 U.S.A. • (509) 735-1000 • FAX (509) 735-6609 • 1-800-TRI-CITY

COMMENTS OF THE  
TRI-CITY INDUSTRIAL DEVELOPMENT COUNCIL  
IN RESPONSE TO THE DRAFT  
ENVIRONMENTAL IMPACT STATEMENT  
ON THE DISPOSAL OF DECOMMISSIONED DEFUELED CRUISER  
OHIO CLASS AND LOS ANGELES CLASS NAVAL REACTOR PLANTS  
SEPTEMBER 21, 1995 - RICHLAND, WASHINGTON

Thank you for the opportunity to provide these comments on behalf of the Tri-City Industrial Development Council. TRIDEC is a not for profit, private-sector organization representing nearly 600 business organizations throughout the Mid-Columbia Region. Our mission is to achieve economic stability and balanced development of the Mid-Columbia Region for the benefit of its citizens and businesses.

We respectfully request that in the Record of Decision in this matter, the U.S. Navy address the issue and advise how it proposes to work with the community in mitigating the adverse impacts of the reactor burial.

As the draft environmental impact statement notes, the Department of Energy Hanford Site adjacent to the Tri-Cities has in recent years been the recipient of pre-Los Angeles class submarine reactor compartments which have been shipped by barge from the Puget Sound Naval Shipyard in Bremerton, up the Columbia River for disposal at Hanford.

As we understand it, the present proposal would result in the burial of approximately 100 reactor compartments from cruisers, Los Angeles and Ohio class submarines, plus a volume of mixed waste estimated to be in the range of 57,400 cubic feet. The total estimated cost of the preferred alternative-meaning burial at the low-level waste site at Hanford is estimated to be \$1.5 billion dollars.

While we do not express objection to the preferred alternative, we believe that further examination of the alternative is required from the standpoint of economic and social impacts upon the community.

As you are aware, the Department of Energy's Hanford site is presently in the midst of a downsizing which over time will result in the elimination of 14,000 jobs as the environmental remediation effort is concluded at the Hanford site.

Because of the projected job loss, this region is actively involved in a significant economic transition project which has its foundation in a variety of economic development strategies two of which are industrial recruitment and tourism.

Our industrial recruitment strategy seeks to leverage the remarkable assemblage of assets at the Hanford site along with the attributes of the Pacific Northwest Laboratory, Washington State University, and many other features to provide an attraction for the establishment or relocation of a broad array of industrial clients. Indeed our community is presently involved in a significant Strengths, Weakness, Opportunities and Threats Analysis to determine the particular industrial targets which should be pursued as a result of our effort. On the basis of information previously developed (or provided to us) there is a well established perception in the minds of many potential clients that this area represents a "nuclear waste dump" and is therefore an undesirable potential site.

For many there is a similar perception with respect to the development of the Mid-Columbia region and the Tri-Cities to the premier agricultural production region and as a tourism destination. Frequently adverse press coverage regarding the transporting of submarine reactor compartments is seen in Seattle, Portland and other major metropolitan areas from which tourists could be expected to travel to the Tri-Cities.

For these reasons we in the community believe that there is an adverse impact resulting from the transportation and storage of those reactor compartments at the Hanford site and that an appropriate means of mitigation is necessary to assist our communities in demonstrating to our industrial recruitment clients, tourists and agricultural customers that despite possible perceptions, there are no demonstrable human health and safety effects as a result of the reactor disposal.

We look forward to working with the U.S. Navy in assessing the negative impacts of the burial program and developing an appropriate means of resolving this issue.

We will provide a copy of these comments for the record along with other supportive materials and thank you for the opportunity to appear before you.

**4.18**
**4.18**

#8

September 27, 1995

Mr. John Gordon  
Puget Sound Naval Shipyard  
Code 1160  
Bremerton, Washington 98314-5001

SUBJECT: COMMENTS ON: DRAFT EIS ON THE DISPOSAL OF DECOMMISSIONED, DEFUELED  
CRUISER, OHIO CLASS, AND LOS ANGELES CLASS NAVAL REACTOR PLANTS

A permanent solution not another temporary storage location is needed. It is recommended the preferred alternative - land burial of the entire reactor compartment at the Department of Energy (DOE) low level waste burial grounds at the Hanford site in Washington State - be the selected option. This option is contingent on the following all activities leading up to and the preparation for shipment from Puget Sound Naval Shipyard oversight be provided by the following organizations:

2.3

Department of Energy, Richland Office, Environment, Safety, and Health Division.

Washington Department of Ecology, Kennewick, Washington Office.

Hanford Site Contractor responsible for low-level burial grounds.

*Walter D. Blair*

Walter D. Blair, Member  
Hanford Advisory Board  
Health Safety Waste Management Committee

Mailing Address: Walter D. Blair, B1-12  
Hanford Advisory Board  
P.O. Box 1970  
Richland, WA 99352

cc: P. W. Kruger A5-54  
W. A. Hamilton T3-01

G-57

Robert F. Deegan  
Sierra Club Virginia Chapter  
340 Ramapo Road  
Virginia Beach, VA 23462



"When we try to pick out anything by itself,  
we find it hitched to everything else in the universe."

John Muir

October 9, 1995

Mr. John Gordon  
Puget Sound Naval Shipyard  
Code 1160  
Bremerton, Washington 98314-5004

Re: Draft Environmental Impact Statement (EIS) on the Disposal  
of Naval Nuclear Reactor Plants

Dear Mr. Gordon:

Thank you for this opportunity to comment on the Navy's August 1995 Draft EIS on the Disposal of Decommissioned, Defueled Naval Reactor Plants. These comments supplement my letter to you of August 17, 1995 to which you replied on Sept. 18, 1995. These comments are on behalf of the 10,000 members of our environmental group throughout Virginia.

The Draft EIS is manifestly inadequate because it does not address the full scope of environmental impacts of disposal of defueled naval reactor plants. Rather, the Draft EIS improperly seeks to "segment" this environmental problem by only considering the future disposal of certain classes of ships. The Draft EIS must include the reactor compartments of all nuclear ships in existence or planned by the U.S. government. The courts have rejected similar government attempts to "segment" the scope of EIS's. As we urged at the scoping hearing for this EIS, the scope of the EIS must include the reactor plants of all nuclear aircraft carriers, as well as the reactor plants of Seawolf Class and "New Attack" Class submarines. The EIS must also cover the reactor plant of Nuclear Ship Savannah, controlled by the U.S. Maritime Administration.

The Draft EIS is also inadequate in treating the "Protective Waterborne Storage" alternative as a "no action" alternative. The sites chosen for the protracted waterborne storage of the reactor plants would clearly have environmental impacts from this. The custodians of the ships, and nearby residents and workers, would clearly incur a risk of exposure to radiation. Moreover, the mere presence of the added ships would have environmental impacts.

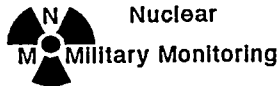
*Robert F. Deegan*  
Robert F. Deegan  
Nuclear Waste Issues Chairman

Robert F. Deegan  
Sierra Club Virginia Chapter  
340 Ramapo Road  
Virginia Beach, VA 23462

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1.4

1.5



Mr. John Gordon  
PSNS Public Affairs  
1400 Farragut Ave., Code 1160  
Bremerton, WA 98314-5001

"...the truth is leaking out."

1995.OCT.10

Re: Comments: DEIS on Disposal of Decommissioned, Defueled ... Naval Reactor Plants

John,

This letter provides comments on the DEIS you sent me for comment.

(1) NMM supports the decommissioning and permanent disposal of all naval nuclear reactors, and the Preferred Alternative approach is endorsed.

(2) Despite this endorsement of the Navy's overall objective and approach, the DEIS is so seriously flawed, technically as to suggest PSNS likely will not be able to complete the anticipated decommissioning of about 100 naval nuclear reactors without one or more serious nuclear accidents occurring.

This fundamental criticism notes the history of probabilistic risk assessment regarding nuclear reactors, from the groundbreaking Rasmussen report (WASH-1400, NUREG 75/014) to the 1992 report of the New Zealand Special Committee on Nuclear Propulsion, "The Safety of Nuclear Powered Ships" (ISBN 0-477-001628-6). That era opened with great hope that quantification of nuclear risks would allow reduction of those risks and ended with an emerging realization that quantification reveals a sad curiosity of nuclear reactors: that the overall hazard of nuclear reactor operations (a) is attributable to extremely rare, catastrophic accidents and (b) is unacceptably large. With this realization, reactor operators such as PSNS have retreated to reliance on their generally favorable track records.

From the standpoint of probabilistic risk assessment, this means that PSNS has acquired an *it's-safe-because-there's-been-no-accident* mindset that *invites* a major nuclear accident at the shipyard. The development of this mindset as revealed by the DEIS is surely technically negligent, and it appears to be grossly negligent in the legal sense as well.

The concern for accidents is obviously one of the greatest concerns for both safety and environmental consequences of the proposed decommissioning and disposal activities. Yet in the DEIS, the only assessment of Hypothetical Accident Conditions (Sec.2.1.5.3) addresses one type of transportation accident. In particular, the decommissioning activities at PSNS are taken as risk free.

This outlook to risk issues seems to pervade the modern nuclear Navy and PSNS in particular. But history has shown that in an atmosphere of disregard for risks, accident frequencies mushroom. With nuclear reactor and/or weapons activities, this institutionalized disregard for risks leads inexorably to TMI and Chernobyl sorts of occurrences.

Finally, I notice that after two years of NMM studies proximate to PSNS, the shipyard still does not address criticism of its nuclear attitude and radiological data.

an activity of The Tides Foundation



(3) The DEIS is essentially *reactor shield paint* -- what used to be called boiler plate. It is unclear whether the DEIS superficiality serves to deflect public suspicions or is a consequence of ongoing loss of Navy perspective. For example, the second paragraph of the Background (Sec.1) mentions some of the power plant components which are of concern for decommissioning and disposal with special flagging of neutron activation of impurities in the 100+ tons of lead shielding around a reactor. But this flag is disappointing. The description of hazards of elemental lead in Sec.4.2.3 is unrelated, and the curie contents of the reactor vessel internal structures tabulated in Appendix D are not broken out by components. This leaves the reviewer in doubt whether the information is being withheld from the public for some reason or whether the Navy is unaware of the requisite radiological details. If the former is correct, one worries about the Navy's motives for disinformation. If the latter is correct, one worries that the shipyard workers will be exposed to toxic materials, radiation, and hazardous situations because PSNS is technically undiscriminating in technical issues related to safety.

Such examples abound in the DEIS.

(4) The thrust of Comments (2) and (3) is that the DEIS does not provide an adequate technical basis for the proposed disposal of the decommissioned naval reactor plants. Yet that disposal is endorsed despite the Navy's lack of technical foundation, because the hazards presently posed by naval nuclear reactors and operational naval nuclear weapons are so very much greater.

Any questions or comments are welcome. Please note the change of NMM address.

Sincerely,

Norm Buske



#11



STATE OF WASHINGTON  
DEPARTMENT OF ECOLOGY

P.O. Box 47600 • Olympia, Washington 98504-7600 • (206) 407-6000 • TDD Only (Hearing Impaired) (206) 407-6006

October 10, 1995

Mr. John Gordon  
Puget Sound Naval Shipyard  
1400 Farragut Ave Code 1160  
Bremerton WA 98314-5001

Dear Mr. Gordon:

Thank you for the opportunity to comment on the draft environmental impact statement (DEIS) for the Disposal of Decommissioned, Defueled Cruiser, Ohio Class, and Los Angeles Class Naval Reactor Plants. The Washington Department of Ecology's Nuclear Waste Program has reviewed the DEIS and offers the following comments. We appreciate the Navy's presentation of the analyses in a compact form.

Ecology recognizes that the preferred alternative is based on nearly ten years experience with pre-Los Angeles class submarine reactor compartments. The Navy has worked with Ecology to comply with hazardous and radioactive waste disposal requirements, and has demonstrated that the disposal can be done without measurable contamination of the environment.

The Navy has also worked with appropriate agencies in both Washington and Oregon to assure safe and uneventful transport of the reactor compartments from Bremerton to Hanford. So long as present procedures for notification, inspection and escort continue, we believe that the transportation risks are acceptable.

The State of Washington believes in shared responsibility among the states. Disposal of naval reactor compartments ought to be considered in the context of disposal of other radioactive and hazardous wastes left over from the Cold War era. Washington citizens will be willing to consider the preferred alternative for reactor compartment disposal on the merits so long as other states accept other nuclear waste disposal burdens.

We would recommend that the final EIS provide data that would help the public evaluate a modified waterborne storage ("no action") alternative. Section 4.4 of the Draft EIS does not indicate the decrease in worker and transport exposure that would result from deferring the preferred method of disposal for

John Gordon  
October 10, 1995  
Page 2

fifteen years. It may be that this alternative would that significantly reduce worker exposures, exposures in transport, and, therefore, the costs associated with disposal.

If you have any questions, please call Mr. Max Power with our Nuclear Waste Program at 360-407-7118.

Sincerely,

Rebecca J. Inman  
Environmental Review Section

RI:  
95-6203

cc: Max Power, Nuc Waste  
Geoff Tallent, Nuc Waste

4.6

1.6

4.6

G-60



## Dakota Creek Industries Inc.

820 Fourth Street P.O. Box 218 Anacortes, Washington 98221  
Telephone (360) 293-9575 FAX (360) 293-6432

October 10, 1995

CERTIFIED MAIL  
RETURN RECEIPT REQUESTED

Mr. John Gordon  
Puget Sound Naval Shipyard  
1400 Farragut Avenue, Code 1160  
Bremerton, WA 98314-5001

Subject: Comments on the Navy's "Draft Environmental Impact Statement (DEIS) on the Disposal of Decommissioned, Defueled Cruiser, Ohio Class and Los Angeles Class Naval Reactor Components" dated August 1995

Dear Mr. Gordon,

We have taken the opportunity to review the subject DEIS and we would like to submit the following comments as a part of the public review process.

**Item 1 - Consideration of Private Shipyard Facilities** - The preferred alternative expressed in the Navy's Draft Environmental Impact Statement is for removal 100 nuclear submarine and cruiser reactor compartments using facilities at the Government owned and operated Puget Sound Naval Shipyard (PSNS) at Bremerton, WA, with subsequent barge transportation of reactor compartments to the Port of Benton for land burial facilities at the Hanford Nuclear Reservation (HNR). The DEIS, page 2-42, states that the land burial facilities at the Savannah River Site (SRS) are not adequate to support the proposed work and that "the Hanford site is the only site available for land disposal of the entire reactor compartment." It would therefore be inferred that the controlling factor for the reactor compartment disposal program is the access and availability of HNR to support land burial and that PSNS becomes the logical currently nuclear certified facility with drydocking capability to support the disposal work because of its close proximity to HNR. The DEIS does not address alternatives to allow the use of private shipyards in the Puget Sound area or along the Columbia - Willamette Rivers which could be certified to accomplish reactor compartment disposal work. It is requested that the DEIS be revised to establish the criteria which a privately owned shipyard would have to meet in order to become certified for performance of reactor compartment disposal work.

There are existing shipyard facilities located both on Puget Sound and along the Columbia-Willamette River systems which have the physical capability to support work operations as described in the DEIS. It should be noted that ship repair facilities located along the Columbia and Willamette Rivers have a significant advantage for shipment of reactor compartments because:

(1) The shipping distance becomes about 250 miles, all within protected waters. This approach eliminates the open ocean transport of the barge shipment which occurs in the shipping lanes of Puget Sound and along the Washington coast. As noted in the DEIS, the potential for a barge shipping accident is directly proportional to the distance shipped. Although the potential for a barge shipping accident is low, shipping from PSNS (a distance of 800 miles from HNR) would have 3.2 time the accident potential as a shipping from a site along the Columbia River with a shipping distance of 250 miles. In actuality, the highest accident potential exists during the open ocean transportation portion of the barge shipment and consequently, the accident potential would be reduced even further than the direct proportioning by distance.

(2) The DEIS notes that the Navy does not make barge shipments to HNR during the winter months due to the inclement weather off the Washington coast. A site on the Columbia-Willamette river system could be operated year around due to the elimination of the open ocean shipping portion of the travel.

(3) The potential severity of a barge accident is reduced when shipments are made from the Columbia - Willamette river system as compared to shipments from PSNS. As noted in the DEIS, the reactor compartment shipping packages will have a crush depth if about 300 feet; this being the point when the closure bulkheads would fail. During shipments from PSNS, over 70% of the ocean transit is in waters exceeding 300 feet and a barge collision resulting in a sinking would very likely breach the package boundaries, with potential release of radioactivity to the environment and would result in substantial cost to recover the reactor compartment. For shipment from the Columbia-Willamette river systems, the channel depth is maintained at 40 feet to the Portland area and at 14 feet from Portland to the off-loading site at the Port of Benton, consequently, a barge sinking accident on the Columbia River would not result in a breach of the reactor compartment and recovery actions would be considerably less expensive.

Dakota Creek Industries is a complete ship building and ship repair facility located at Anacortes, Washington, approximately 50 miles north of Seattle. Over the past few years, we have made substantial capital investment in our facilities which we believe makes our shipyard a well qualified facility to assist in the Navy's reactor compartment disposal program. Our major facilities include a 306-ft by 75-ft Syncrolift shiplift with a 5,000 ton lifting capacity and a 9,000 ton drydock with a length of 314-ft, with a clear width of 90-ft between wing walls. Our shiplift is certified for use by US Navy ships in accordance Mil Std 1625B, and our drydock is suitable for certification under Mil Std 1625B. The shiplift was constructed in 1987 and did not exist in 1984 when the Navy prepared the FEIS for the reactor compartment removal on the pre-Los Angeles class submarines. We are currently seeking additional drydocking capacity through acquisition of a longer drydock with a capacity of at least 15,000 tons. Additionally, we have pier side and industrial shop facilities which could be effectively used to support the Navy's reactor compartment disposal and ship recycling programs. Our existing and planned facilities in Anacortes have the capacity to perform the following operations for the Navy:

(1) Perform hull recycling work on defueled, decommissioned nuclear submarines which have had their reactor compartments removed; several ships in this status are currently in waterborne storage at Puget Sound Naval Shipyard. These boats could be used to refine hull dismantlement and recycling procedures prior to assignment of a defueled, decommissioned boat for reactor compartment removal.

4.2

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(2) Perform reactor compartment removal on Los Angeles and pre-Los Angeles nuclear submarines, using our shiplift or drydock facilities. Figure 1 shows the general layout of the Dakota Creek facilities. The shiplift can also be used as a waterborne berth for Los Angeles Class submarines for preparatory work such as asbestos removal, making the hull cuts for equipment removal and removal of interferences in way of reactor compartment circumferential hull cuts. At least two pre-Los Angeles or Los Angeles Class defueled submarines could be transferred land side for reactor compartment removal and submarine hull recycling. Each reactor compartment would be transferred to a disposal barge and the loaded barge would then be placed into the water using the shiplift. We believe that a level of four reactor compartment removal operations per year could be easily achieved at Dakota Creek Industries, Inc.

(3) With acquisition of increased drydocking capability, Dakota Creek Industries will have the capability to drydock defueled, decommissioned nuclear cruisers and Ohio Class submarines.

*Recommendation* - There currently exists substantial shipyard capacity in the Puget Sound area and along the Columbia - Willamette River systems to perform work operations on defueled, decommissioned naval nuclear powered ships. The Navy's preferred alternative should be modified to include the technical and administrative requirements which need to be met by private industrial facilities to obtain radiological work certification for performance of reactor compartment removal work on defueled, decommissioned naval ships.

Item 2 - Cost Data - Table C-1, Appendix C, Page C-3, provides a cost projection for accomplishing the reactor compartment disposal operations on cruiser, Ohio and Los Angeles class submarines. The Table footnotes indicate that the "costs are based on actual costs to prepare a pre-Los Angeles class submarine reactor compartment adjusted for the level of effort required for the larger packages." Paragraph 3, Page C-2, indicates that the monetary values are based on 1994 fiscal dollars, but the data does not indicate an average man day rate for the work.

*Recommendation:* In order to make a comparison more understandable, it is requested that Table C-1 be revised to show the actual cost data for a pre-Los Angeles class submarine and that the table also be revised to show the number of man days of shipyard effort required to accomplish the various phases of work (engineering, management, labor and support services, water removal and packaging) for pre-Los Angeles submarines, cruisers, Ohio and Los Angeles class submarines.

The Navy's reactor compartment disposal program has been a highly successful program and Dakota Creek Industries is very excited about the opportunity to present our capabilities to support this important effort. We are committed to providing high quality, cost effective services in support of the reactor compartment disposal program. At your convenience, we would be happy to arrange a tour of our facilities to provide additional information. Thank you for the opportunity to participate in the public comment portion of the environmental review process.

Sincerely,  
Dakota Creek Industries, Inc.

*Richard N. Nelson*  
Richard N. Nelson  
President

4.1

C.1

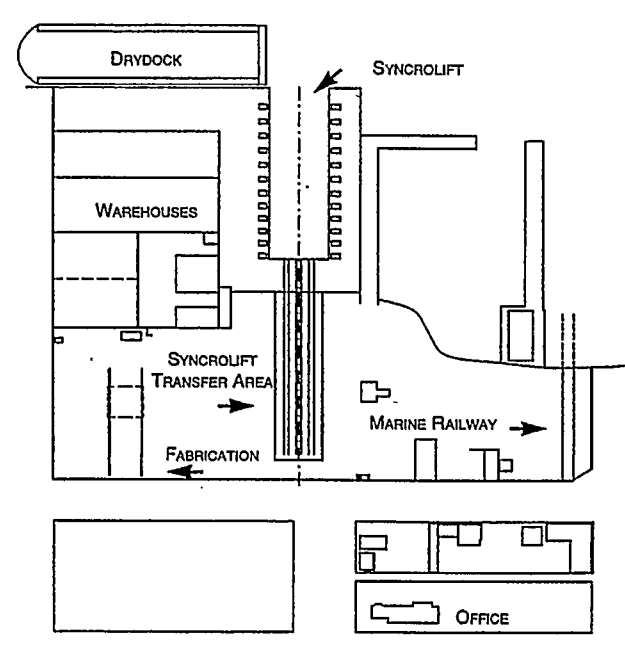


Figure 1 - Shipyard Layout for Dakota Creek Industries, Inc



#13



COMMONWEALTH of VIRGINIA  
DEPARTMENT OF ENVIRONMENTAL QUALITY

Peter W. Schmidt  
Director

October 10, 1995

P O Box 10009  
Richmond, Virginia 23240-0009  
(804) 762-4500

Mr. John Gordon  
Puget Sound Naval Shipyard  
Code 1160  
Bremerton, Washington 98314-5001

Dear Mr. Gordon:

This is in response to your request for comments on the Draft Environmental Impact Statement on the Disposal of Decommissioned, Defueled Cruiser, Ohio Class, and Los Angeles Class Naval Reactor Plants. The Department of Environmental Quality is responsible for coordinating Virginia's review of federal environmental documents and responding to appropriate federal officials on behalf of the Commonwealth. The Hampton Roads Planning District Commission, the Department of Health's Bureau of Radiological Health and the Department of Environmental Quality's Tidewater Regional Office took part in this review.

The preferred alternative is to continue disposal of these reactor plants at the Department of Energy's Hanford, Washington site. The Commonwealth is in agreement with this option.

The no action alternative involves protective storage of these ships and reactor plants at other facilities, including Norfolk Naval Shipyard in Portsmouth, Virginia. Protective storage at the Norfolk Naval Shipyard appears to be a viable short-term option from an environmental standpoint. However, there is relatively limited areas available for storage of a significant number of decommissioned and defueled ships and reactors.

The Department of Environmental Quality will coordinate the Commonwealth's review and response on the final environmental impact statement for this proposal. Correspondence should be addressed to: Director, Office of Environmental Impact Review,

Mr. John Gordon  
Page Two

Department of Environmental Quality, P. O. Box 10009, 629 East Main Street, Richmond, Virginia 23240-0009.

Thank you for this opportunity to comment on the draft document. If you need further information, please contact Tom Felvey, (804) 762-4315, of my staff.

Sincerely,

*Michael P. Murphy*  
Michael P. Murphy  
Director, Grants Management  
and Intergovernmental Affairs

cc: V. Wayne Orton, City of Portsmouth  
John M. Carlock, Hampton Roads PDC  
Tony R. Watkinson, VMRC  
Leslie P. Foldesi, VDH

C-63

#14



## City of Portsmouth, Virginia

Office of the Mayor  
P. O. Box 820

Portsmouth, Virginia 23705-0820

October 9, 1995

Established 1752

(804)-393-8746

Mr. John Gordon  
Puget Sound Naval Shipyard  
Code 1160  
Bremerton, Washington 98314-5001

Dear Mr. Gordon:

Thank you for the opportunity to comment on the Draft Environmental Impact Statement on the Disposal of Decommissioned, Defueled Cruiser, Ohio Class and Los Angeles Class Naval Reactor Plants. I simply wish to comment on some presumptions contained in the No Action Alternative. This alternative would involve long term storage of defueled cruisers and later class submarines at the Norfolk Naval Shipyard in Portsmouth.

Initial dredging of 165,000 cubic yards of material would be required, according to the E.I.S. Additionally, maintenance dredging every 15 years would be necessary. This draft document states that this material will be dumped at Craney Island. This City has serious objections to dumping this material at Craney Island. Craney Island is reaching capacity, and the City strongly opposes any proposed expansion. Efforts to force this expansion could be bolstered by this added dredging requirement.

Further, the storage of these ships, with the associated danger of contamination, albeit small, and the associated dredging inure no economic benefit to the City of Portsmouth. Finally, the draft E.I.S. notes that our geographic location "does not lie in the principal storm tracks" for hurricanes. We have in fact been in the middle of the expected landfall area several times in recent years. I request that you clarify our potential for experiencing a hurricane in the final form of this document.

Thank you again for the opportunity for comment.

Sincerely,

*Gloria O. Webb*

Gloria O. Webb  
Mayor

cc: Members of Council

#15



IN REPLY REFER TO:

## United States Department of the Interior

OFFICE OF THE SECRETARY  
Office of Environmental Policy and Compliance  
500 NE Multnomah Street, Suite 600  
Portland, Oregon 97231-2036

October 16, 1995

ER 95/641

John Gordon  
Public Affairs Officer  
Puget Sound Naval Shipyard  
1400 Farragut Ave., Code 1160  
Bremerton, Washington 98314

Dear Mr. Gordon,

The Department of the Interior (Department) has reviewed the Draft Environmental Impact Statement on the Disposal of Decommissioned, Defueled Cruiser, Ohio Class and Los Angeles Class Naval Reactor Plants. The Department does not have any comments to offer.

We appreciate the opportunity to comment.

Sincerely,

*Charles S. Polityka*

Charles S. Polityka  
Regional Environmental Officer

4.3

4.4

4.5

64



## UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 10  
1200 Sixth Avenue  
Seattle, Washington 98101

Reply To  
Attn of: WD-126

December 1, 1995

John Gordon  
Public Affairs Officer  
Puget Sound Naval Shipyard  
1400 Farragut Avenue, Code 1160  
Bremerton, WA 98314

Dear Mr. Gordon:

Re: DEIS on Disposal of Decommissioned Naval Reactor Plants

The Environmental Protection Agency has reviewed the draft Environmental Impact Statement (DEIS) on proposed alternatives for disposing of nuclear fuel plants on Ohio Class and Los Angeles Class vessels. Our review was conducted in accordance with the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act. Our comments are offered to assist in the preparation of the final EIS.

We have given the DEIS an LO-1 rating (Lack of objections; sufficient information). The major issues of long-term nuclear waste storage are being addressed in Department of Energy documents under NEPA, which we are currently reviewing. We believe that you have adequately and thoroughly addressed the remaining major issues of personnel safety, public safety and transportation in this DEIS. Our potential concerns specific to your document and their resolution are enumerated below.

We support your preferred alternative of permanent storage of entire, defueled and processed, nuclear reactor compartments at the Hanford site. The other alternatives of indefinite storage or subdivision and reuse of components do not seem to be comparable. The latter alternative can be ruled out on estimated costs alone.

The DEIS addressed shielding lead issues (not regulated by EPA under RCRA) according to the Hazardous Waste Management Act, administered by the Washington State Department of Ecology. Appropriate training procedures for personnel have been identified. Removal of all materials, including radioactive, will be conducted under the PSNS solid waste minimization program. Worker exposure to lead, asbestos and radioactive materials has been adequately addressed in accordance with OSHA and other federal regulations (Appendix A).

Waterborn transport out of the Sound and straits, on the ocean and on the Columbia River is thoroughly discussed (4-7 through 4-9, and E-9). Appropriate precautions and mitigation measures have been observed. A risk analysis of radiation exposure associated with transportation was conducted.

The cost analysis of alternatives does not indicate that future values have been discounted to present value, although there is reference to 1994 FY dollars. Since completion of this program will be spread out over 15 to 20 years, time values are an important consideration. The President's Office of Management and Budget (OMB) currently recommends an 8.1% nominal rate for 30 year projects (Circular A-94). Even though the cost estimates are "orders of magnitude" (C-2), it would be helpful to have some further explanation of the treatment of cost over time.

We hope these comments will be useful as you prepare the final EIS. Thank you for working with us during reorganization and other delays to our preparing a timely response. If you have any questions about our comments, please contact Doug Woodfill at (206) 553-4012.

Sincerely,

*Richard B. Parkin*  
Richard B. Parkin, Manager  
Geographic Implementation Unit

C.2

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## EXHIBIT INDEX

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### **3. Responses to Issues from Public Review**

This chapter presents responses to 35 issues identified during the public review period for the Draft Environmental Impact Statement (DEIS). These issues were received in letters and in statements made at the public hearings as recorded in Chapter 2. The issues are identified where they appear in Chapter 2 by a sidebar and are given a serial number consisting of a subsection letter and number, such as 1.5 or 4.3, which relates the issue to the subsection of this chapter where the response is provided.

---

## SECTION 1

This Section contains issues related to the Environmental Impact Statement as a whole, to the Summary and to Chapter 1.

### 1.1 Summary of Issue

The Draft Environmental Impact Statement is flawed because it does not include a probabilistic assessment for reactor operations, such as the Rasmussen report or the New Zealand report on "The Safety of Nuclear Powered Ships." Such reports have shown that most of the risk from nuclear reactor operations comes from severe accidents, and this risk is unacceptably large.

#### Those Identifying Issue

#### Identification Number

Nuclear Military Monitoring - Norm Buske

10

#### Response

The subject of this Environmental Impact Statement is disposal of defueled reactor plants, that is, reactor plants from which the nuclear fuel has been removed. Therefore, probabilistic risk assessments of operating reactors with nuclear fuel are beyond the scope of this Environmental Impact Statement. It should be noted that the New Zealand report cited by the commenter concluded that "The presence in New Zealand ports of nuclear powered vessels of the navies of the United States and the United Kingdom would be safe. The likelihood of damaging emission or discharge of radioactive material from nuclear powered vessels is so remote that it cannot give rise to any rational apprehension."

### 1.2 Summary of Issue

The Draft Environmental Impact Statement reveals a mindset at Puget Sound Naval Shipyard that things are safe because there has been no accident. The development of this mindset as revealed by the Draft Environmental Impact Statement is surely technically negligent and it appears to be grossly negligent in the legal sense as well.

#### Those Identifying Issue

#### Identification Number

Nuclear Military Monitoring - Norm Buske

10

#### Response

The commenter offers no specific examples in the Draft Environmental Impact Statement to support his claim of a flawed and negligent mindset. To the contrary, the outstanding radiological safety record at Puget Sound Naval Shipyard, as well as throughout the Naval Nuclear Propulsion Program, derives in a great part from the careful attention to detail and the prevention of problems at their source.

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### 1.3 Summary of Issue

The Draft Environmental Impact Statement is inadequate in its description of the radionuclide content of the lead shielding and the individual components of the reactor vessel internal structure.

#### Those Identifying Issue

#### Identification Number

Nuclear Military Monitoring - Norm Buske

10

#### Response

The Draft Environmental Impact Statement included specific radionuclide information in several sections. Section 1.2 described how 99.9% of the radioactivity is an integral part of activated metals, while the remaining 0.1% is radioactive corrosion and wear products deposited on the internal surfaces of piping systems. Table 1.1 provided the radionuclide breakdown for various classes of reactor plants. Appendix D provided a detailed discussion of how the radioactivity content was calculated for the activated structural material. Table D-3 provided a breakdown of the long-lived radionuclide content.

Appendix B discusses the long term performance of the reactor compartment packages in the burial environment, and how even the long-lived radionuclides are greatly limited in their release by the slow process of corrosion. Section 4.3.3.2.1.4 discusses analysis of the radiological significance of long term radionuclide release in the burial ground. Since all of the reactor vessel internal structure is conservatively assumed to be corroding slowly at the same time, the overall radionuclide content of this structure and its corrosion rate determines the release of radioactivity. A more detailed breakdown of components would not provide any additional information on potential environmental impacts.

The neutron activation of trace metals in the lead shielding makes an insignificant contribution to the overall radioactivity content of the reactor compartment package. The fact that such neutron activation occurs was discussed in the Draft Environmental Impact Statement to make clear the point that even if one went to the considerable expense and occupational radiation exposure to remove all of the lead shielding, much of this lead would have to be disposed of as radioactive waste anyway.

### 1.4 Summary of Issue

The Draft Environmental Impact Statement is inadequate because it "segments" the environmental problem by only considering the disposal of certain classes of ships. The Environmental Impact Statement should include analysis of all nuclear powered aircraft carriers, SEAWOLF Class submarines, the new attack class, and the nuclear ship Savannah.

#### Those Identifying Issue

#### Identification Number

Sierra Club, Virginia Chapter - Robert F. Deegan

9

#### Response

As discussed on page S-1, the Draft Environmental Impact Statement included all types of nuclear powered ships which are expected to be decommissioned in the next 20 years. Since the Navy is not faced with a decision on other classes of nuclear powered ships within this time period, there is no need to evaluate them at this time. Neither the Navy nor the Department of Energy is

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responsible for the nuclear ship Savannah, which is defueled and in floating storage as a museum at Charleston, South Carolina.

### **1.5 Summary of Issue**

The Draft Environmental Impact Statement is inadequate in treating the floating storage alternative as a "no action" alternative. This alternative would clearly have risks and impacts for workers and nearby residents.

<b><u>Those Identifying Issue</u></b>	<b><u>Identification Number</u></b>
Sierra Club, Virginia Chapter - Robert F. Deegan	9

### **Response**

The Council on Environmental Quality regulations for implementing the National Environmental Policy Act require the evaluation of the environmental impacts of a "no action" alternative. The "no action" alternative does not always result in "no impacts", because failure to take action can result in impacts. The environmental impacts associated with the "no action" waterborne storage alternative were fully discussed in Section 4.4 of the Draft Environmental Impact Statement.

### **1.6 Summary of Issue**

Disposal of reactor compartments ought to be considered in the context of other radioactive and hazardous wastes left over from the Cold War era. Washington citizens will be willing to consider the preferred alternative for reactor compartment disposal on the merits so long as other states accept other nuclear waste disposal burdens.

<b><u>Those Identifying Issue</u></b>	<b><u>Identification Number</u></b>
Washington Department of Ecology - Rebecca J. Inman	11

### **Response**

The disposal of other nuclear wastes derived from defense activities of the Cold War era is beyond the scope of this Environmental Impact Statement. The Navy notes that this Washington State policy has been stated in the course of negotiations between the States and the Federal Government as part of the Federal Facilities Compliance Act process. Issues of equity among the States have been a key part of the waste treatment and disposal agreements reached as part of this process.

### **1.7 Summary of Issue**

The commenter expressed disappointment about having to "decommission another set of nuclear powered ships" and commented that "With the last environmental impact statement on submarines in which ten reactors were supposed to be decommissioned, we've found that there has been many more reactor cores buried at Hanford." The commenter also expressed concern that "Washington State may be in for more than what this draft statement is telling us."



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Those Identifying Issue

Identification Number

Pat Herbert

1

Response

The Navy's Final Environmental Impact Statement on the Disposal of Defueled Naval Submarine Reactor Plants issued in May of 1984 stated "The most immediate concern and the action to which this statement is directed is the disposal of the reactor plants from the approximately 100 nuclear submarines that may be decommissioned during the remainder of this century." (USN, 1984a, Chapter 1, para I.A). In addition, Figure 1-1 of that EIS showed that the potential number of decommissioned submarines would be 50 to 85 by 1995.

It must be noted that the proposed action does not involve disposal of reactor cores. The core is the fuel-bearing part of the reactor and would be removed prior to disposal of the reactor compartment.

**1.8 Summary of Issue**

Contractors are not constrained by the same process controls as Naval Shipyard workers. Will the Environmental Impact Statement still be valid in the event that someone other than Naval Shipyard workers does the work?

Those Identifying Issue

Identification Number

Roy Hocker

4, 4a

Response

The Environmental Impact Statement would be valid regardless of whether public employees or private employees performed the work because the same technical requirements would be enforced for all work on Naval nuclear propulsion plants. For a more detailed discussion of these technical requirements, see the response to Issue 4.1.

**1.9 Summary of Issue**

A large amount of money to build a force of nuclear warships which is too large for the threat and too much money is spent on burials and cleanup.

Those Identifying Issue

Identification Number

Pat Herbert

1

Response

The Congress, by law, establishes the national defense structure and the level of spending for defense. This subject is outside the scope of this Environmental Impact Statement. Even though nuclear powered warships represent about forty percent of the Navy's major combatants, the handling and disposal of the resultant radioactive waste, including reactor compartment disposal, is only about 0.1% of the Navy budget (U.S. General Accounting Office report GAO/NSIAD-92-256, "Nuclear-Powered Ships Accounting for Shipyard Costs and Nuclear Waste Disposal Plans").

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## SECTION 2

This Section contains issues related to the Summary and Chapter 2 of the Environmental Impact Statement

### 2.1 Summary of Issue

Private Shipyards in the Puget Sound area could perform recycling of ships from which the reactor compartments already have been removed.

<u>Those Identifying Issue</u>	<u>Identification Number</u>
Dakota Creek Industries Inc. - Richard N. Nelson	12

### Response

The Navy has an existing recycling program for the nonradioactive sections of nuclear powered ships for which an Environmental Assessment and Finding of No Significant Impact have been issued. Recycling of nonradioactive ship sections is beyond the scope of this Environmental Impact Statement.

### 2.2 Summary of Issue

In the Draft Environmental Impact Statement, the only assessment of hypothetical accident conditions is in Section 2.1.5.3 and addresses one type of transportation accident. In particular, the decommissioning activities at PSNS are taken as risk free.

<u>Those Identifying Issue</u>	<u>Identification Number</u>
Nuclear Military Monitoring - Norm Buske	10

### Response

The discussion in Section 2.1.5.3 of the Draft Environmental Impact Statement involves the hypothetical accident conditions for which shipping containers of radioactive materials must be designed. These hypothetical accident conditions are quite severe, including a 30 foot drop onto an unyielding surface, a drop onto a steel bar, immersion in a hot fire, and submergence in water. Packages designed to these standards are extremely robust packages.

In addition to discussion of how the reactor compartment packages meet these stringent safety requirements, the Draft Environmental Impact Statement included a discussion of several other potential accident scenarios. Section 7.7 of Appendix E discussed the analysis of potential accidents scenarios for both the barge shipment of reactor compartments as well as truck and rail shipments of subdivided components. This analysis included consideration of accident scenarios even more severe than the package design requirements. Even the extreme case of sinking in deep water where the package would be breached by sea pressure was evaluated in Section 4.3.2.3. Extreme natural phenomena such as catastrophic breach of the Grand Coulee dam were discussed in Section 4.3.3.1.

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The severe transportation accidents analyzed represent the worst case condition that this radioactive material might experience. The shipyard preparation work would present less risk of a severe accident since the radioactive material would be handled under controlled conditions, by trained personnel, with onsite emergency response capability, without the element of fast moving vehicles or ships, and at a greater distance from the public than during transportation.

With regard to decommissioning activities at PSNS, this Environmental Impact Statement evaluates the alternatives for the disposal of defueled, decommissioned reactor compartments. That is, the reactor fuel was removed and the ship decommissioned prior to activities covered by this EIS. Defueling nuclear powered ships at PSNS or at any other Navy shipyard licensed to perform nuclear work has been safely conducted for many years. Defuelings have been done to support refuelings as well as decommissionings. All work is done to detailed work procedures and stringent safety practices. Conducting nuclear work in a manner that protects the environment, workers and the general public is among the Navy's highest priorities.

### **2.3 Summary of Issue**

The commenter supports the preferred alternative contingent on oversight by the Department of Energy Richland Office, and the Washington State Department of Ecology.

<b><u>Those Identifying Issue</u></b>	<b><u>Identification Number</u></b>
Hanford Advisory Board - Walter D. Blair	8

### **Response**

As discussed in Section 2.1.5.4, disposal of the reactor compartment packages is regulated by the Washington State Department of Ecology due to the quantity of permanent lead shielding present. The Department of Energy is a cooperating agency for this Environmental Impact Statement. The Department of Energy Richland Operations Office and the Hanford Site burial grounds contractor would fully participate in the reactor compartment disposal process if the preferred alternative were selected.

### **2.4 Summary of Issue**

Disposition of the non-reactor compartment portions of ships is a significant part of the work that the public should know about.

<b><u>Those Identifying Issue</u></b>	<b><u>Identification Number</u></b>
Henrik Langhjem	3

### **Response**

The Navy's, June 1993 Environmental Assessment of the Submarine Recycling Program at Puget Sound Naval Shipyard provides the public with information on the disposition of nonreactor compartment portions of ships. Sections 2.1 and 2.3.2 of the Environmental Impact Statement explain that non-reactor compartment portions of the ships could be dispositioned by recycling.

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## 2.5 Summary of Issue

Permits will be given out by the Department of Ecology on wastes, which if they were anywhere else in the state except Hanford, would not be permitted.

### Those Identifying Issue

Pat Herbert

### Identification Number

1

### Response

The Washington Administrative Code, WAC-173-303 does require that certain types of wastes be disposed of only at Hanford. However, the technical standards for issuance of permits at Hanford are as stringent as for elsewhere in the State.

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## SECTION 3

This Section contains issues related to the Summary  
and Chapter 3 of the Environmental Impact Statement

### **3.1 Summary of Issue**

The Environmental Impact Statement refers to the production of 1,625 cubic meters of mixed waste. The Environmental Impact Statement does not appear to address disposal of these materials. It is evident that Hanford's Low-Level Burial Ground is not appropriate for disposal of these materials. Accordingly, the Environmental Impact Statement must address a site for disposal of these materials and the environmental impacts attendant thereto.

<b><u>Those Identifying Issue</u></b>	<b><u>Identification Number</u></b>
Heart of America Northwest - Cynthia Sarthou	6, 6a

### **Response**

Most of the 1,625 cubic meters of mixed waste is potassium chromate waste as discussed in sections 2.1, 4.3.3.2.1.6 and 4.5.2. As discussed in section 2.1.1.1, the potassium chromate mixed waste can be readily treated to render it nondangerous, after which it can be disposed of as nondangerous radioactive waste. The Final Environmental Impact Statement has been revised to state that mixed wastes will be managed in accordance with the approved Site Treatment Plan pursuant to the Federal Facilities Compliance Act of 1992.

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## SECTION 4

This Section contains issues related to the Summary  
and Chapter 4 of the Environmental Impact Statement

### 4.1 Summary of Issue

Private shipyards in the Puget Sound area or along the Columbia River could perform the reactor compartment disposal work envisioned in the preferred alternative. The Draft Environmental Impact Statement should be revised to establish the criteria which a privately owned shipyard would have to meet in order to become certified for performance of reactor compartment disposal work.

<u>Those Identifying Issue</u>	<u>Identification Number</u>
Dakota Creek Industries Inc. - Richard N. Nelson	12

### Response

Specific analysis of private shipyard performance of the preferred alternative was not identified by any commenters during the scoping process as a topic to be evaluated in the Environmental Impact Statement.

Any shipyard performing work on Naval nuclear propulsion plants is required to be authorized to perform such work by the Naval Nuclear Propulsion Program, pursuant to the Atomic Energy Act of 1954 as amended. Currently, there are four Naval Shipyards authorized to perform such work and two private shipyards, Newport News Shipbuilding of Newport News, Virginia and the Electric Boat Division in Groton Connecticut. Authorization to perform such work is a long and complex process involving extensive qualification in the areas of nuclear quality control, radiological control, welding, lifting and handling, and the specific features of the nuclear propulsion plants which are serviced in the shipyard. The last time any shipyard undertook the steps to achieve such authorization was in 1967. With the end of the Cold War, the Navy was faced with excess capacity in nuclear capable shipyards. Two nuclear capable Naval Shipyards have been closed in the 1990's through the Base Realignment and Closure Act process, and the workload at the two private shipyards has been reduced significantly. The Navy currently is not pursuing additional nuclear capable shipyard capacity.

If a private shipyard in the Puget Sound area were authorized and available to perform such work, the standards and radiological controls applied to the work would be the same as those employed at Puget Sound Naval Shipyard. The environmental impacts associated with the work, which are quite small as described in the Draft Environmental Impact Statement, would remain essentially unchanged. Therefore, the environmental impacts of this minor proposed variation of the preferred alternative were covered in the Draft Environmental Impact Statement.

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#### 4.2 Summary of Issue

A shipyard located on the Columbia River would have a significant advantage over Puget Sound Naval Shipyard. The shipping distance would be closer with less chance of accident. Shipments could be made all winter since winter storms in the ocean would not preclude shipments. The Columbia River channel is maintained at 40 feet deep to Portland and 14 feet deep upriver, so the entire shipment could be made without risk of package rupture in the event of a sinking.

##### Those Identifying Issue

##### Identification Number

Dakota Creek Industries Inc. - Richard N. Nelson

12

#### Response

While the shipping distance from a Columbia River shipyard would be shorter, this does not confer a significant advantage. Risks associated with shipping would be correspondingly smaller for a Columbia River shipyard, but these risks are already extremely small as discussed in Section 4.3.2 of the Draft Environmental Impact Statement. For example, the radiological risk to the public from all 100 shipments was calculated to be 0.000061 latent cancer fatalities for normal conditions and 0.0000929 for accidents. Section 4.3.2.3 discussed how even in the case of the sinking of two nuclear powered submarines in the deep ocean, environmental monitoring of the wreckage sites confirmed negligible impact. The winter shipping restriction has not limited the reactor compartment disposal output of the Puget Sound Naval Shipyard since reactor compartment packages completed in the winter can be stored easily for shipment during the following year.

#### 4.3 Summary of Issue

The City of Portsmouth has serious objections to disposal of dredge spoils at Craney Island. Craney Island is reaching capacity, and the City strongly opposes any proposed expansion.

##### Those Identifying Issue

##### Identification Number

City of Portsmouth Virginia - Gloria O. Webb, Mayor

14

#### Response

Section 4.4. of the Draft Environmental Impact Statement stated that current permits for dredging at Norfolk Naval Shipyard specify Craney Island as the disposal site. The Environmental Impact Statement has been revised to explain that Craney Island receives about 3,500,000 cubic yards of dredge spoils per year from the Hampton Roads area. Based on this annual volume of dredge spoils, it is estimated that the site will not exceed its current capacity until the year 2030. It is also estimated that 165,000 cubic yards of dredge spoils would be produced over a 15 year period in support of the no action alternative. This would constitute less than 1/3 of 1% of the 52,500,000 cubic yards ( 3,500,000 cubic yards per year multiplied by 15 years) of dredge spoils that are expected to come from the Hampton Roads area during the same time period.

With regard to the indefinite storage option, the major point of this discussion in Section 4.4 is that the amount of dredging related to storage is small compared to overall dredging activity at Norfolk Naval Shipyard, and this small amount of dredge spoil could be disposed of in the same manner as the other shipyard dredge spoil.

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#### 4.4 Summary of Issue

Storage of ships would bring no economic benefit to the City of Portsmouth.

##### Those Identifying Issue

##### Identification Number

City of Portsmouth Virginia - Gloria O. Webb, Mayor

14

##### Response

This comment is consistent with Section 4.4.1 of the Draft Environmental Impact Statement, which stated that the storage alternative would result in no socioeconomic impact at Norfolk Naval Shipyard.

#### 4.5 Summary of Issue

The Draft Environmental Impact Statement states that Norfolk Naval Shipyard "does not lie in the principal storm tracks" for hurricanes." In fact, Portsmouth has been in the middle of the expected landfall area several times in recent years.

##### Those Identifying Issue

##### Identification Number

City of Portsmouth Virginia - Gloria O. Webb, Mayor

14

##### Response

The quoted statement appeared in Section 4.4.2 of the Draft Environmental Impact Statement, which discusses the consequences of extreme weather for the waterborne storage alternative. A more complete description of the hurricane risk appeared in Section 3.2.2. The latter section noted that hurricanes can and do strike in the Portsmouth area, but they often veer away to sea. It also noted that the Shipyard's location protects it from buildup of large waves, and that the key threat posed by hurricanes at Norfolk Naval Shipyard is high water due to storm surge. The final Environmental Impact Statement has been revised to include more of this discussion in Section 4.4.2 and to exclude the statement concerning principal storm tracks.

#### 4.6 Summary of Issue

The Final Environmental Impact Statement should provide data on an alternative where the preferred alternative of reactor compartment disposal is deferred for 15 years. It may be that this alternative would significantly reduce worker exposures, exposures in transit, and therefore the costs associated with disposal.

##### Those Identifying Issue

##### Identification Number

Washington Department of Ecology - Rebecca J. Inman

11



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## Response

From Table C-3, Appendix C, the total estimated exposure for the preferred alternative is 1,508 Rem. The majority of that exposure is a result of water removal which is accomplished during the inactivation phase. Water removal would also be done in preparation of the defueled, decommissioned submarines or cruisers for waterborne storage. Delaying reactor compartment disposal operations would reduce exposure by about 25% compared to immediate disposal operations.

From Table C-2, Appendix C, the cost to keep the ships covered by this EIS in protected waterborne storage for 15 years is about \$143 million. This cost would subtract from any savings realized from the reduced exposure due to a 15 year delay in disposal operations. An important factor in reducing Shipyard operational expenses is through the efficient use of Shipyard resources, facilities and labor forces. This can best be accomplished (or achieved) by allowing as much flexibility in work scheduling as possible. The 15 year waterborne storage would (or could) be counter productive to the most efficient uses of Shipyard assets which would result in additional expenses to the disposal operations.

### 4.7 Summary of Issue

The numerous inactivated ships moored on the waterfront of Puget Sound Naval Shipyard are a concern. How is the integrity of these older vessels being maintained? How are they going to continue to be maintained there?

<u>Those Identifying Issue</u>	<u>Identification Number</u>
Henrik Langhjem	3

## Response

Section 2.2 on page 2-29 provides a description of the basic measures necessary to keep decommissioned defueled nuclear powered vessels in waterborne storage. This section discusses the conclusion given in the 1984 Final Environmental Impact Statement that protective waterborne storage could safely be done. The defueled submarines currently in waterborne storage at Puget Sound Naval are safely stored as described in both EIS documents.

### 4.8 Summary of Issue

The recycling part of the work is hurting workers. Emissions from arc welding processes over lead canning and ballast tanks and using torches to cut through copper anti-fouling paint are concerns. A toxic Release Information Summary Report, by the State Department of Ecology, does not contain one single entry for the entire county, but airborne and waterborne emissions are being created.

<u>Those Identifying Issue</u>	<u>Identification Number</u>
Henrik Langhjem	3

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## Response

The Navy currently maintains and will continue to maintain comprehensive environmental and occupational, safety and health programs. Under those programs Puget Sound Naval Shipyard has conducted industrial hygiene sampling for work on cutting through hull sections coated with paint that contains a high percentage of copper. Air samples taken in the worker's breathing zone show levels of copper to be well below the permissible limit established by the Occupational Safety and Health Administration. Workers at any distance from the actual burning operation would receive an even lower exposure. In addition, welders wear respiratory protection during the cutting operation, which effectively reduces their exposure.

### 4.9 Summary of Issue

Material safety data sheets are not readily available for boats being worked on. Some Material Safety Data Sheets address how exposure to the material may increase the risk of birth defects. This information is of particular concern to pregnant workers.

#### Those Identifying Issue

Henrik Langhjem

#### Identification Number

3

## Response

This issue concerns the integrity of day-to-day operation of Puget Sound Naval Shipyard's occupational safety and health program. The program is comprehensive and covers thousands of workers involved in most every conceivable industrial task. It is to be expected that periodically a worker with legitimate concerns about exposure to hazardous substances will question an aspect of the program, therefore processes exist within the program for resolving issues such as the one raised by the commenter. Should any pregnant employee have any questions about her working environment, whether Material Safety Data Sheet related or not, she is trained and encouraged to raise those questions with her chain of command, or directly with the Shipyard's Environmental, Safety and Health Office.

Material Safety Data Sheets are not required for articles, which are manufactured items and may be fabricated from one or more different materials. Material Safety Data sheets fall under the hazard communication regulation set forth in 29 CFR 1910.1200. The purpose of the regulation is to ensure that hazards of all chemicals produced or imported are evaluated, and that information concerning their hazards is transmitted to employers and employees. Under the regulation, articles are exempted from the requirements of the hazardous communication program and do not require Material Safety Data Sheets. For example, because a submarine or ship hull arrives in the shipyard in its final form, it is considered an article per 29 CFR 1910.1200. Hull surface coatings are considered intrinsic to the hull design and therefore also fall under the definition of an article and do not require a Material Safety Data Sheet.

Employees need to be protected from hazards associated with the work that they do, such as flame-cutting of painted metal articles, even though Material Safety Data Sheets are not required for the articles being cut. The keys to protecting them in such situations are training, material sampling, work area monitoring and personnel protective equipment. These are thoroughly addressed by the Shipyard's occupational safety and health program.

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#### 4.10 Summary of Issue

Some of the profits from recycling of nonradioactive sections of ships should be invested in process improvements for the shipyard workers and environment.

##### Those Identifying Issue

##### Identification Number

Henrik Langhjem

3

#### Response

Although the Shipyard sells the nonradioactive materials from the ship recycling program, this program operates at a net loss for the Navy. The funds received from the sale of recycled materials are not sufficient to pay the costs of the Shipyard recycling effort. The Federal Government supports this program in order to ensure that the ships are recycled safely and responsibly. As discussed in the responses to Issues 4.8 and 4.9, this work is being conducted safely.

#### 4.11 Summary of Issue

The Environmental Impact Statement should clarify statements about how much radioactivity is removed by defueling and how much remains in the defueled reactor compartment.

##### Those Identifying Issue

##### Identification Number

Henrik Langhjem

3

#### Response

All (100%) of the fuel would be removed prior to disposal of the reactor compartment as explained in Section 1.1. Section 1.2 of the statement explains that 99.9 percent of the radioactive material that remains is an integral part of the solid metal structural alloys forming the plant components and that the other 0.1 percent remaining is radioactive corrosion and wear products deposited on piping system internals.

#### 4.12 Summary of Issue

The fact that the Shipyard denies public access in the Restricted Area along the Shipyard waterfront suggests that the Navy is unwilling to allow objective scrutiny of the environmental impacts of decommissioning and transportation operations in Puget Sound.

##### Those Identifying Issue

##### Identification Number

Heart of America Northwest - Cynthia Sarthou

6, 6a

#### Response

Since Puget Sound Naval Shipyard is a defense installation, public access to the Shipyard and the waters along the Shipyard waterfront is restricted. Nevertheless, the Navy consistently has invited independent environmental sampling by State and Federal officials, such as in the case of the 1994 and 1995 joint sampling with the Washington Department of Health and the

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U.S. Environmental Protection Agency. The results of such monitoring have been published. In addition, the U.S. Environmental Protection Agency's "Radiological Surveys of Naval Facilities on Puget Sound" (EPA 520/5-88-016) reports the results of independent sampling performed in 1987. Representatives of Washington and Oregon routinely survey reactor compartment packages prior to shipment.

#### **4.13 Summary of Issue**

The reactor compartments contain lead and PCB-laden materials. Although deemed a low-level burial ground, the area slated for disposal is, in effect, a system of large trenches with minimal protections against leaching and contaminants. It is imperative that the EIS address the potential environmental impacts of these materials in the absence of institutional controls. These materials must be subject to regulation under the Washington State Dangerous Waste Regulations to minimize the effect of disposal of these materials.

<b><u>Those Identifying Issue</u></b>	<b><u>Identification Number</u></b>
Heart of America Northwest - Cynthia Sarthou	6, 6a

#### **Response**

It is inaccurate to describe the reactor compartment disposal site as a trench with minimal protections against leaching contaminants. As discussed in section 4.3.3.2.1.1 of the Draft Environmental Impact Statement, the Hanford Low-Level Burial Grounds will have a protective cover installed to minimize water intrusion. As discussed in section 4.3.3.2.1.1 and Appendix B, the corrosion resistance provided by the thick steel reactor compartment package will prevent any leaching of contaminants for many hundreds of years, far longer than the regulatory requirements (30 years) for hazardous waste disposal trench liners and covers.

Nevertheless, the evaluation of migration of both radioactive and nonradioactive contaminants in the sections 4.3.3.2 and 4.3.3.3 takes no credit for the protective cover. Furthermore, the long term analysis in Appendix B assumes the absence of institutional controls.

As stated in section 1.2, reactor compartment disposal would be regulated by the Washington Department of Ecology under the Washington State dangerous waste regulations because of the lead shielding and by the U.S. Environmental Protection Agency for the small quantity of polychlorinated biphenyls (PCBs).

#### **4.14 Summary of Issue**

The Navy has recently instructed the Department of Energy to bar public and press viewing of burial grounds containing naval reactor compartments during U.S. Department of Energy tours of the Hanford Nuclear Reservation. By this action, the Navy is implicitly stating that it is unwilling to open its disposal practices to public scrutiny. This is objectionable. The public should not be barred from seeing these practices.

<b><u>Those Identifying Issue</u></b>	<b><u>Identification Number</u></b>
Heart of America Northwest - Cynthia Sarthou	6, 6a

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## Response

Beginning with the first defueled reactor compartment disposal at Hanford in 1986, security of the low level waste burial grounds area established and enforced by the DOE did not allow public access to the trench. After DOE began to relax security requirements at the low level waste burial grounds and allow escorted public tours, the Navy requested that the Department of Energy limit access to the reactor compartment trench area to persons with regulatory responsibilities, such as personnel from the Washington State Department of Ecology or the U.S. Environmental Protection Agency. This provided consistency with Navy security practices that remained in effect at facilities involved in submarine activities. This practice did not prevent the public from receiving technical information regarding reactor compartment disposal.

The comment that the Navy is unwilling to subject its disposal practices to public scrutiny is incorrect. Examples of the extensive technical information which has been made available to the public regarding this project include: the 1984 Environmental Impact statement on the disposal of reactor plants from pre-LOS ANGELES class submarines; permitting documents for the disposal trench; and various studies. This information was placed in public libraries in Bremerton, Richland, Seattle, and Portland. In addition, the U.S. Navy publication, "US Naval Nuclear Powered Submarine Inactivation, Disposal, and Recycling" provides more detailed information about the reactor compartment disposal program. Further, this Environmental Impact Statement fully describes the reactor compartment disposal process, including a site map (Figure 2.8), a photograph of the reactor compartment disposal trench (Figure 2.11), conceptual diagrams of expanded trench capacity (Figures 2.10 and 2.12), and an extensive technical evaluation of the potential environmental impact (Chapter 4).

In summary, the information readily available to the public, fully describes the reactor compartment burial process.

### 4.15 Summary of Issue

The Navy should minimize its use of Hanford lands for disposal of Naval reactor plants. The public does not consider Hanford a sacrifice zone and objects to the continual use of large areas of Hanford for Navy and Department of Energy waste disposal. Moreover, the cost of Hanford lands should be included in any analysis of the fiscal cost.

<u>Those Identifying Issue</u>	<u>Identification Number</u>
Heart of America Northwest - Cynthia Sarthou	6, 6a

## Response

The Final Environmental Impact Statement has been revised to include discussion of a trench arrangement where the reactor compartments are placed closer together than the current arrangement. Such an arrangement appears to be feasible, and would eliminate the need to expand the trench or dig an adjacent trench.

The Federal Government has owned the land at the Hanford Site for over 50 years. Therefore, it is difficult to put an accurate monetary price on the value of the land. The highest prices for privately owned land in the Richland area are approximately \$75,000 per acre for prime riverfront property that has been developed for residential use. Even with this high land value, the land cost would be less than 0.05 percent of the total project cost for the preferred alternative.

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#### 4.16 Summary of Issue

The production of mixed waste should be minimized and materials recycled where possible. The Environmental Impact Statement should consider inclusion of recyclable materials within the proposed United States Department of Energy Program policy, known as Recycle 2000.

##### Those Identifying Issue

##### Identification Number

Heart of America Northwest - Cynthia Sarthou

6, 6a

#### Response

The Draft Environmental Impact Statement discusses recycling of radioactive materials. Section 2.1.1.1 discusses reuse of radioactive potassium chromate solutions. Such solutions are recycled in the construction of new submarines. This reduces the generation of mixed wastes. Section 2.3.2 explains that much of the radioactive metal that would be generated with the subdivision alternative would be recycled using already existing private industry foundry technology. This section also notes that the Navy already recycles radioactive metals by this method. The Department of Energy Recycle 2000 initiative envisions recycling of radioactive metals into radioactive waste containers. If implemented by DOE, this program would provide another metal recycling option for the Navy in addition to the existing private industry foundry process.

#### 4.17 Summary of Issue

The calculated times for transport of contaminants from the burial ground are disturbing. The Environmental Impact Statement should consider them more fully. The calculations might be based on United States Department of Energy calculations which have been shown to be erroneous, especially for tritium.

##### Those Identifying Issue

##### Identification Number

Heart of America Northwest - Cynthia Sarthou

6

#### Response

The corrosion and transport evaluation in the Draft Environmental Impact Statement is the result of work of several organizations, including not only the Department of Energy, but the Battelle Pacific Northwest National Laboratory, the Naval Civil Engineering Laboratory, the Naval Facilities Engineering Laboratory, the National Institute of Standards and Technology, and Puget Sound Naval Shipyard. The contribution of each organization is identified in the Draft Environmental Impact Statement.

The migration analysis for elements such as lead and nickel differs greatly from the tritium migration example cited by the commenter. Tritium is in the chemical form of water, and it migrates readily wherever water migrates in the environment. Migration of metallic oxides is greatly retarded by soil and arid conditions. This results in the extremely long migration times discussed in the Draft Environmental Impact Statement.

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#### 4.18 Summary of Issue

The reactor compartment disposal at Hanford contributes to the perception of Hanford as the nuclear waste site capital of the world. This makes it difficult to recruit new businesses and diversify the local economy. The Navy should help the Tri-Cities mitigate this perception and help demonstrate to industrial recruitment clients, potential tourists, and agricultural customers that there are no demonstrable human health and safety effects as a result of the reactor compartment disposal.

##### Those Identifying Issue

##### Identification Number

Tri-City Industrial Development Council - Dave Dillman    7, 7a

As discussed in sections 4.3 and 4.8.1 of the Draft Environmental Impact Statement, the socioeconomic and environmental impacts on the region from shipment of reactor compartments to the Hanford Site would be insignificant and therefore would not warrant mitigation. As part of the Environmental Impact Statement process, the Navy is going to considerable expense and effort to produce a credible and understandable analysis of the very small environmental impacts associated with reactor compartment disposal at Hanford. The Navy has made this analysis available to the public by widely distributing the Environmental Impact Statement to private citizens and groups, advertising its availability in newspapers, holding four public meetings throughout the state, and notifying elected public officials.

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## SECTION C

This Section contains issues related to the Summary  
and Appendix C of the Environmental Impact Statement

### C.1 Summary of Issue

In order to make a comparison more understandable, Table C-1 should be revised to show the actual cost data for a pre-LOS ANGELES Class submarine and to show the number of mandays of shipyard effort needed to accomplish the various phases of work.

<u>Those Identifying Issue</u>	<u>Identification Number</u>
Dakota Creek Industries Inc. - Richard N. Nelson.	12

#### Response

Appendix C summarizes the monetary costs as well as the radiological exposure costs of the alternatives in a format suitable for comparison. Dollars, as opposed to man-days, were used throughout Appendix C because dollars are considered most meaningful to most people for comparing monetary costs. The complexities of the Naval Shipyard financial and accounting systems would have to be explained in detail in order to make manday information meaningful to the public. The cost to dispose of a LOS ANGELES Class reactor compartment was considered to be the same as the actual cost of the most common pre-LOS ANGELES Class reactor compartments due to similarity in size and plant configuration. The footnote to Table C-1 has been revised to clarify this point.

### C.2 Summary of Issue

The cost analysis of alternatives does not indicate that future values have been discounted to present value, although there is reference to 1994 FY dollars. Since completion of this program will be spread out over 15 to 20 years, time values are an important consideration. The President's Office of Management and Budget (OMB) currently recommends an 8.1% nominal rate for 30 year projects (Circular A-94). Even though the cost estimates are "orders of magnitude" (C-2), it would be helpful to have some further explanation of the treatment of cost over time.

<u>Those Identifying Issue</u>	<u>Identification Number</u>
United States Environmental Protection Agency - Richard B. Parkin.	16

#### Response

The purpose of including cost information in the Environmental Impact Statement is to provide the opportunity to compare various options on the same cost-type basis. Although not clearly stated in the Draft Environmental Impact Statement, all costs were expressed in constant (FY 1994) dollars. The Environmental Impact Statement has been revised to state clearly that all costs are provided in constant dollars.



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The constant dollar costs were calculated by determining the cost of accomplishment in 1994. In the past, the cost of working with radioactive waste has increased much faster than the OMB established nominal rates. Due to the uncertainty of these primary cost drivers, the Navy did not forecast future values and then discount the costs to constant dollars, but took a more direct approach by applying FY 1994 estimates for all anticipated work. This method provides the constant dollar cost estimates required in capital budgeting and is considered by the Navy to be a more accurate and valid cost comparison procedure in this instance.

However, for comparison purposes, the Navy has modified the Environmental Impact Statement to include footnotes that provide total program costs discounted to present value using the Office of Management and Budget 30-year real discount rate of 4.9% per year. The "real" discount rate of 4.9% was used rather than the "nominal" rate of 8.1% since the future costs were already expressed in FY 1994 dollars rather than in future nominal dollars.